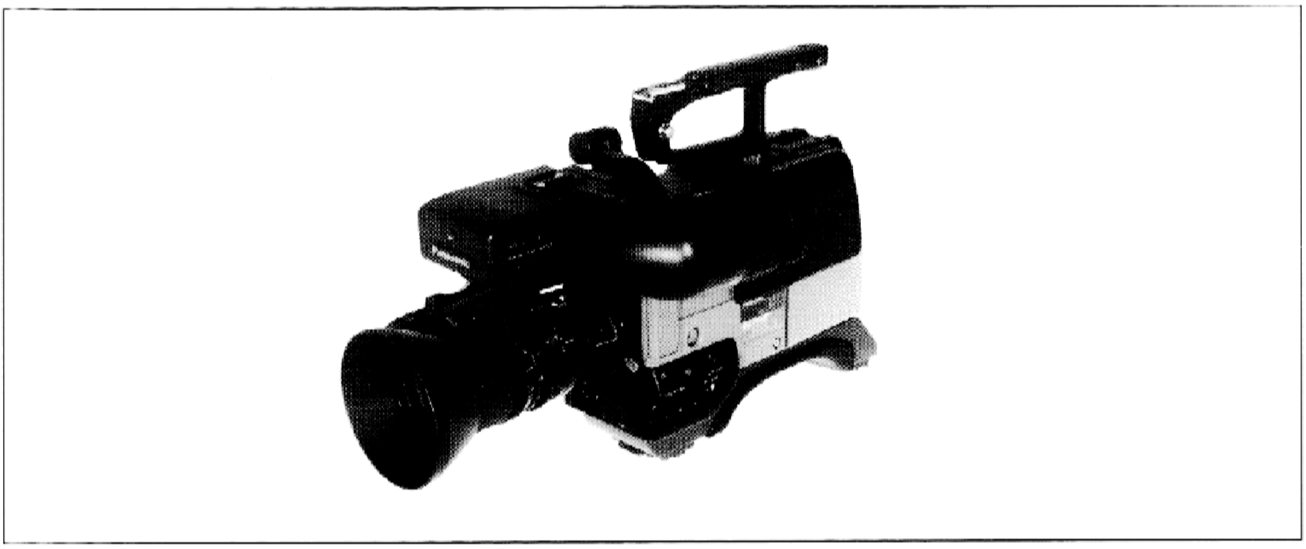
ORDER NO. AVS9501939C8

Service Manual

Colour Video Camera
WV-F565



CONTENTS

Vol. 1 Major Operating Controls and Their Function/Circuit Description . . . . 1-1 – 1-39
Vol. 2 Adjustment Procedure . . . . 2-1 – 2-23
Vol. 3 Wiring Diagram/Block Diagrams/Schematic Diagrams/Conductor Views . . . . 3-1 – 3-29
Vol. 4 Replacement Parts List/Exploded View . . . . 4-1 – 4-26

Vol. 1
Vol. 2
Vol. 3
Vol. 4

Panasonic

©1995 Matsushita Communication Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICEING TO QUALIFIED SERVICE PERSONNEL.

This symbol warns the user that uninsuland voltage within the unit may have suificient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

⚠ This symbol alerts the user that impotant literature concerning the operation and maintenance of this has been included. Therefore, it should be read carefully in order to avoid any problems.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are indicated by the "⚠" mark on the schematic diagram and the replacement parts list. It is essential that these critical parts should be repleced with manufacture's specilied parts to prevent shock, fire, or other hazards.

Do not modify the original design without permission of manufacture.

ORDER NO. AVS9501939C8

Service Manual

Colour Video Camera

WV-F565

Vol. 1

Circuit Description

Vol. 1

CONTENTS

Specifications 1-1
Major Operating Controls and Their Functions 1-3
IC Description 1-9

Panasonic

SPECIFICATIONS

Pick-up System:	Middle index prism system (F1.4)
Image Sensor:	Three 1/2" frame interline transfer (FIT) super high sensitivity CCDs
Pixels:	771 (Horizontal) x 582 (Vertical)
Scanning Standard:	625 lines, 50 fields, 25 frames
Synchronizing System:	Internal or external (gen-lock), automatically switchable
Internal:	PAL standard
External (gen-lock) Input:	PAL composite (VBS) signal or black burst signal
Subcarrier Phase for Gen-lock:	Freely adjustable over 360°
Horizontal Phase for Gen-lock:	Adjustable
Video Output:	1.0 Vp-p PAL composite/75 ohms x 2 (BNC connector) **Y/C (S-VIDEO) Output:** 0.7 Vp-p Luminance level (Y) composite/75 ohms x 1 (S-VIDEO connector) 0.3 Vp-p burst level chrominance/75 ohms x 1 (S-VIDEO connector) 1.0 Vp-p PAL composite/75 ohms x 1 (26 pin VTR/RCU connector) (R/G/B, Y/PB (B-Y)/PR (R-Y), Y/C/B, ENC, Switchable) **R/G/B:** 0.7 Vp-p/75 ohms x 1 each **Y/PB/PR:** Y: 1.0 Vp-p (Sync: 0.3 Vp-p)/75 ohms x 1 PB/PR: 0.525 Vp-p/75 ohms (at full colour bar) x 1 each **Y/C/B:** Y: 0.7 Vp-p Luminance level (Y) Composite/75 ohms x 1 C: 0.3 Vp-p burst level chrominance/75 ohms x 1 B: 0.7 Vp-p/75 ohms x 1 **ENC:** PAL: 1.0 Vp-p composite/75 ohms x 1
Auxiliary Input:	1.0 Vp-p composite/75 ohms through 26 pin VTR/RCU connector
Audio Output:	-20 dBm or -60 dBm/unbalanced, switchable (26 pin VTR/RCU connector)
Illumination Required:	2000 Lux at F8.0, 3200K
Minimum Illumination:	1 lux at F1.4 with Night Eye, more than 70% output level
Signal-to Noise Ratio:	63 dB (typical, luminance) without aperture correction, DNR HIGH
Horizontal Resolution (at centre):	850 lines (Y signal) Hi Band DTL ON
Registration:	0.05% (entire picture area, excluding lens)
Detail/Aperture:	Horizontal and vertical (2-line type)
White Balance:	Automatic white balance setting (AWC with two memories) and PRESET, white balance, ATW
Black Balance:	Automatic with pulse canceler
Encoder:	Y, R-Y, B-Y
Colour Bar:	Built-in full colour bar generator with time, date generator and camera ID.
Electronic Shutter:	1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., 1/4000 sec., 1/10000 sec., synchro-scan, ELC
Colour Conversion Filters:	3200K, 5600K with 6.25% ND, 5600K
Maximum Cable Length:	26 pin Studio Cable: Max. 300m
Switches:	
Camera:	Power, Colour Bar/N.E./Camera Selection, High Gain Selection, White Balance Selection, Auto White/Auto Black Set, Level Indicator/Zone, VTR Start/Stop, Check, Lens Iris Selection, Detail Level Selection, Highlight CHROMA, Recording Time Reset, Electronic Shutter On/Off, Back Light Comp., Scene File Selection, Page, Item, Up, Down
Camera Adaptor:	VTR Compatibility, Audio Level Selection, Earphone Out Selection, VTR Video Output Selection 1, VTR Video Output Selection 2, Power Selection
Viewfinder:	Tally ON/OFF
Zoom Lens (Canon 13X Lens):	Servo/Manual Zoom Selection, Servo Zoom Control, Iris Control Selection, Auto Iris, Return Video, Macro VTR Start/Stop
Controls:	
Camera:	Total Pedestal, Lens Iris, Audio (with AU-45H)
Camera Adaptor:	Earphone/Intercom Level
Viewfinder:	Brightness, Contrast Peaking
Standard Lens (Canon 13X Lens):	13:1 auto iris servo control zoom lens, 7.5 - 97.5 mm with macro mode, 1.4
Lens Iris:	Automatic or manual
Lens Mount:	Bayonet mount for 1/2" pickup device

Lens Filter Size:	82 mm P=0.75 (with food), 72 mm P=0.75 (with lens)
Viewfinder:	1.5" (1-3/8" actual image size) electronic viewfinder with character display, safety zone, Date/Time and zebra level indicator
Power Source:	12V DC, 5 sources as follows: (1) Battery Pack (2) AC Adaptor (3) External DC source through 4-pin DC connector (4) VTR (external AC adaptor) (5) Remote Control Unit through VTR/RCU connector
Power Consumption:	Camera Head: (12V DC) 11.4W ENG Configuration (12V DC): 16.0W (with WV-AD500, WV-VF42) Studio Configuration (12V DC): 25.6W (with WV-AD500, WV-VF42)
Ambient Operating Temperature:	-10°C - +45° (C50°F - 113°F)
Ambient Operating Humidity:	30% - 90%
Dimensions:	
• **Camera Head Only**	134 (W) x 244.5 (H) x 287 (D) mm 5-1/4" (W) x 9-5/8" (H) x 11-3/16" (D)
• **ENG Configuration** (Exclude the Tripod Mounting Adaptor)	268.5 (W) x 283 (H) x 460 (D) mm 9-9/16" (W) x 11-1/8" (H) x 18-1/8" (D)
• **Studio Configuration** (Exclude the Tripod Mounting Adaptor)	181 (W) x 521 (H) x 531 (D) mm 7-1/8" (W) x 20-1/2" (H) x 20-7/8" (D)
Weight:	
• Camera Head only	2.4 kg (5.3 lbs.)
• ENG Configuration (Exclude the Tripod Mounting Adaptor)	5.3 kg (11.6 lbs.)
• Studio Configuration (Exclude the Tripod Mounting Adaptor)	7.6 kg (16.7 lbs.)

Dimensions and weights are approximate.
Specifications are subject to change without notice.

SYSTEM ACCESSORIES

ENG/EFP Kit WV-S550A

1.5" Viewfinder WV-VF42	1 set
Microphone Holder WV-MH500	1 set
Tripod Mounting Adaptor WV-QT700	1 set
Carrying Case WV-CC500A	1 set

MAIN OPTIONAL ACCESSORIES

Camera Adaptor	WV-AD500/WV-AD700AS
Dockable Kit	WV-DKT700S/WV-DKT700M
AC Adaptor/Charger	WV-PS34
Battery Adaptor	WV-BA71 (for AU-BP402)
Battery Adaptor	WV-BA72 (for AU-BP220)
Carrying Case	WV-CC500A
Computer Interface Adaptor	WJ-PC500
Battery Adaptor	WV-AD19
1.5" Electronic Viewfinder	WV-VF42
5" Electronic Viewfinder	WV-VF65B
Remote Control Unit (RCU)	WV-RC700A/WV-RC550
Remote Control Box (RCB)	WV-CB700A
Gun-type Electret Condenser Microphone	WM-L30
Lens Control Kit	WV-LK35/WV-LK36
Tripod Mounting Adaptor	WV-QT700
RCU Rack Mount Frame	WV-Q70
5" Viewfinder Bracket	WV-Q71
Shoulder Strap	WV-QB70
Microphone Holder	WV-MH500

OTHER OPTIONAL ACCESSORIES

VTR Cable:

WV-CA26A10 (26P-10P)	3 m (10 ft)
WV-CA26A14 (26P-14P)	3 m (10 ft)
WV-CA26A26 (26P-26P)	3 m (10 ft)

Joint Connector
  WV-CA26T26

26/32 Conversion Cable
  WV-CA26T32

32/26 Conversion Cable
  WV-CA32T26

10/14 Conversion Connector
  WV-CA10T14

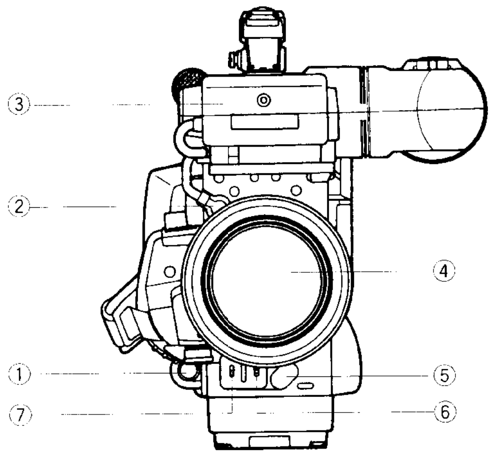
Studio Cable:

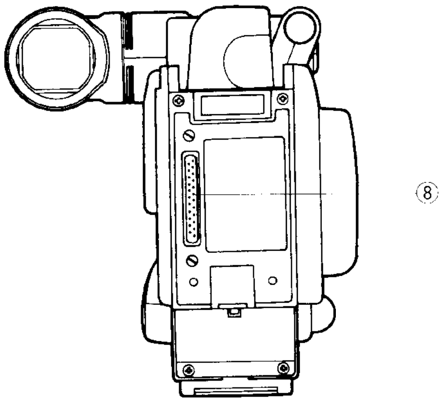
WV-CA26U15	15 m
WV-CA26U30	30 m
WV-CA26U100	100 m

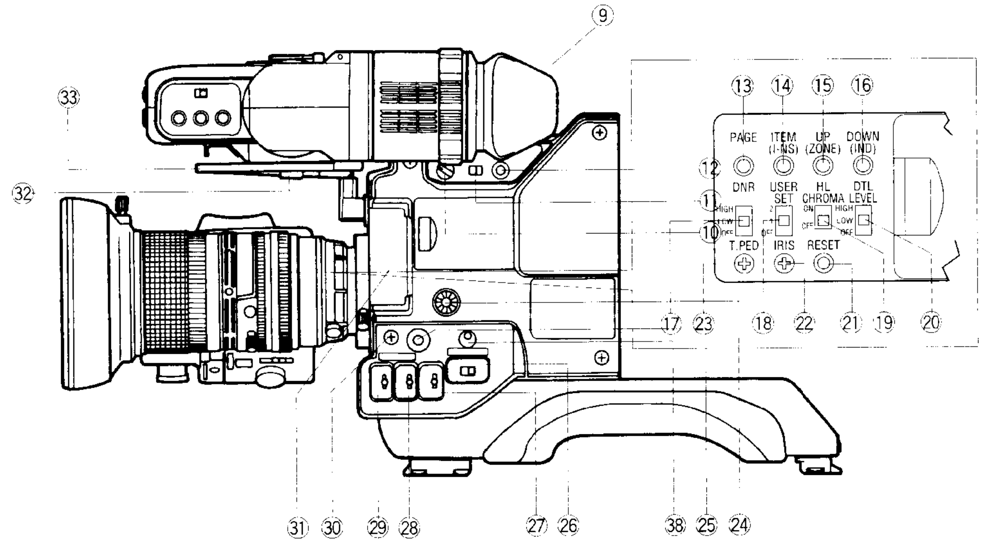
RCB Cable

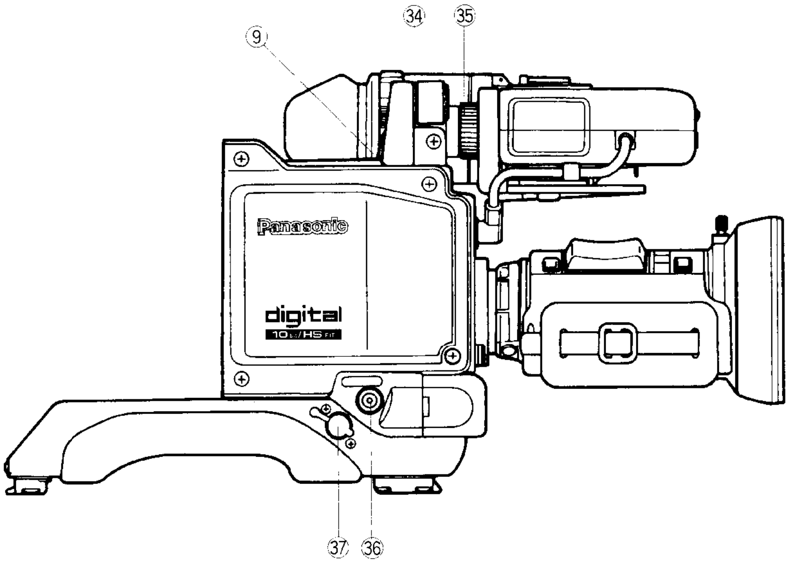
WV-CA10B02	2m
WV-CA10B25	25m
WV-CA10B50	50m

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS






⑨
⑬
⑭
⑮
⑯
㉝
PAGE
ITEM (I-NS)
UP (ZONE)
DOWN (IND)
⑫
㉜
DNR
USER SET
HL CHROMA
DTL LEVEL
⑪
HIGH
LOW
OFF
ON
OFF
HIGH
LOW
OFF
⑩
T.PED
IRIS
RESET
⑰
㉓
⑱
㉒
㉑
⑲
⑳
㉛
㉚
㉙
㉘
㉗
㉖
(38)
㉕
㉔


㉞
㉟
⑨
Panasonic
digital
10bit/HS FIT
(37)
(36)

1. Lens Connector (12-pin) (LENS)

Connect the lens cable to this connector.

2. Viewfinder Connector (12-pin) (VIEWFINDER)

Connect the viewfinder cable from the 1.5" or 5" Electronic Viewfinder to this connector.

Note: When connecting the 5" Electronic Viewfinder, WV-VF65B, to this connector, use the Viewfinder Conversion Cable supplied with the WV-VF65B.

3. 1.5" Electronic Viewfinder

This small 1.5" (1-3/8" actual image size) monitor shows exactly the image picked up by the lens. The viewfinder can be tilted 90° from horizontal and it is adjustable up and down by approximately 20 mm (13/16"). Further, the viewfinder may be slid laterally by up to 45 mm (1-3/4") and 20 mm (13/16") back and forth.

4. Auto Iris Servo Control Zoom Lens

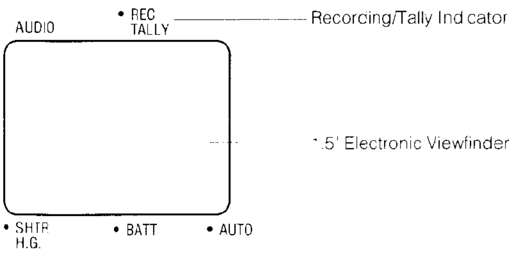
This is a high-quality zoom lens offering automatic as well as manual iris control and servo control zoom. The lens features a bayonet mount and F1.4 maximum aperture.

Picture size may be magnified by up to 13 times through use of the zoom feature.

Simply rotate the macro ring for close-up or wide angle recording. Macro shooting is possible of objects up to 5 cm (1-15/16") from the lens surface.

5. VTR Start/Stop Button (VTR) (parallel operation)

This button is used to change the recorder mode from pause (Recording Pause) to recording and functions in the same way as the VTR Start/Stop Button (92) on the lens. Press once to start recording. While recording, the Tally Indicator in the viewfinder and the Recording/Tally Indicator (9) light, and the Tally Light (101) on the viewfinder also lights.



When this button is pressed once more, the recorder is set to the Pause mode (Recording Pause), and the Recording/Tally Indicator and Tally Light will go off.

6. Auto White/Auto Black Set Switch (AUTO W/B BAL AWC/HOLD/ABC)

This switch sets the white balance and black balance automatically as follows:

AWC: This position is used for setting the white balance when the White Balance Selection Switch (28) is set to the AWC A or AWC B position. White balance adjustment is required when "AWC A NG" or "AWC B NG" starts blinking in the viewfinder or when the Auto Warning Indicator in the viewfinder lights.
Two white balance settings for two light sources, such as indoor and outdoor, can be retained in the memory. In this case both the AWC A and AWC B positions are used.

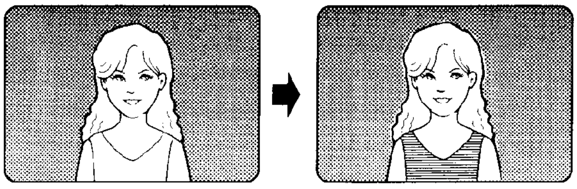
HOLD: In this position, the white and black balances set at the AWC or ABC position can be held fixed if so desired for at least one year.

ABC: This position is used for setting the black balance. Black balance adjustment is required when "ABC NG" starts blinking in the viewfinder or when the Auto Warning Indicator in the viewfinder lights.

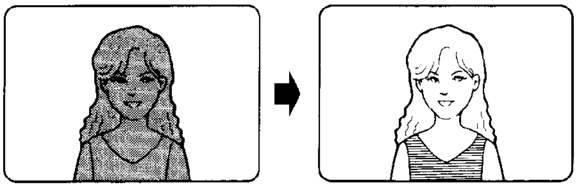
Note: The picture will flash in the viewfinder while the black balance is being set. This flashing indicates that the adjustment is currently being performed and will cease once the adjustment is completed.

7. Lens Iris Selection Switch (LENS IRIS: 1/2 OPEN/NOR/1/2 CLOSE)

This switch can be used to set the lens iris opening to compensate for unusual lighting conditions. If the object is brightly lit against a dark background, set this switch to the 1/2 CLOSE position. This will close the lens iris by a 1/2 F stop.



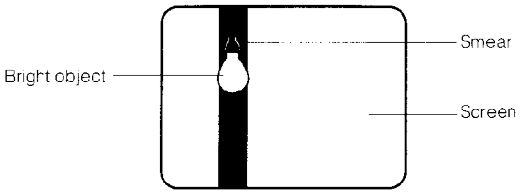
If the object is relatively dark and the background is bright, set the switch to the 1/2 OPEN position. This will open the lens iris by a 1/2 F stop.



At the normal (NOR) position, the lens is operating with normal lens iris openings.

Notes:

1. If this switch is used, be sure to return it to the detent NOR position after use.
2. If the camera is aimed at an extremely bright object, such as the sun or a lamp, vertical bars (i. e. smear) may appear in the picture. This is a peculiar phenomenon of the CCD and is quite normal. Try as much as possible to avoid shooting scenes with extremely bright light, as this could also be harmful to the camera.



3. Set this switch to the NOR position when the camera is used together with the Remote Control Unit (RCU).

8. 68-pin Multi Connector

When mounting the S-VHS dockable VCR (AG-7450A) the MII dockable VCR (AU-45H) or the WV-AD500 Camera Adaptor, engage the 68-pin connectors on the Camera Head and VCR/VTR Adaptor, or Camera Adaptor.

9. Recording/Tally Indicator (REC TALLY)

This indicator changes to one of three colours, depending on the camera mode.

This indicator lights red when the camera is set to the recording mode (through the VTR Start/Stop Button), and informs that the scene is being recorded.

The Tally Indicator also lights when the camera is in full system operation together with the Remote Control Unit and Special Effects Generator.

In case a tape is not loaded or the tape end is reached, or if the servo mechanism is working improperly, this indicator will start blinking to warn the operator of such faults. This indicator lights green when the camera is set to the shutter on mode. This indicator lights yellow when the camera is set to the recording mode and the shutter on mode is selected.

Note: If a portable VTR is not connected to the camera, the Recording/Tally Indicator will not light.

10. Scene File Selection Switch (SCENE FILE, USER A/B/1/2/3)

This switch is used to select the most suitable camera conditions for various scenes to obtain the best picture.

1: Studio Mode

This position is suitable for shooting in normal condition.

Note: This level is adjusted under the condition of 2000 lux 3200 K at F8.

2: ENG Mode

This position is suitable for shooting under fluorescent, halogen or outdoor lighting.

Note: The selection of fluorescent, halogen or outdoor lighting can be selected on the Main Menu.

3: Low Light Mode

This position is suitable for low illumination level shooting.

USER A/B: The camera conditions can be set to the desired level by the user.

11. Electronic Shutter On/Off Switch (SHUTTER, ON/OFF)

This switch is used to select the Electronic Shutter On/Off mode.

When setting this switch to the ON position, the shutter speed is in a speed set by the menu.

Notes:

1. In the electronic shutter operation, the light of the object/scene is taken in a short period of time. Therefore, higher shutter speeds require greater scene illumination.

Shutter Speed	Minimum Illumination (at F8)
1/120 sec.	1000 lux
1/250 sec.	2000 lux
1/500 sec.	4000 lux
1/1000 sec.	8000 lux
1/2000 sec.	16000 lux
1/4000 sec.	32000 lux
1/10000 sec.	80000 lux

2. In the electronic shutter operation, the vertical smear of CCD is emphasized since greater light intensity is required as mentioned above. Avoid shooting scenes which contain extremely bright objects.
3. The white balance may be disturbed if the 1/1000 - 1/10000 sec. electronic shutter is operated while the camera is in the +18 dB high gain condition.

12. Back Light Compensation Switch (BACK LIGHT COMP ON/OFF)

When backlight affects the picture, turn on this switch for a clear picture.

Note: Be sure to set the Auto Iris Button of the lens to the A (Auto) position or activate the Electronic Light Control.

13. Page Switch (PAGE)

By repeated pressing of this switch, the Initial Set and User Set menus can be changed in the viewfinder or on the monitor.

14. Item/I Noise Suppress Switch (ITEM/INS)

When the User Set Switch is set to the 1 or 2 position, this switch is used to move the cursor to the various items in the menu.

When the User Set Switch is set to the OFF position, the I Noise Suppress in the menu can be selected by this switch.

Note: Noise of the i axis on the vector can be suppressed when the Detail Level Selection Switch (20) is set to the HIGH or LOW position.

15. Up/Zone Switch (UP/ZONE)

When the User Set Switch is set to the 1 or 2 position, the On mode of an item can be selected and/or the level of an item can be increased in the menu by this switch.

When the User Set Switch is set to the OFF position, the display on or off of the centre marker or safety zone into the viewfinder can be selected by this switch.

Notes:

1. The marker shows the electronic centre of the picture and might not coincide with the optical centre of the picture.
2. The center marker on/off and type of safety zone can be set by the Sub Menu.

16. Down/Level Indicator Switch (DOWN/IND)

When the User Set Switch is set to the 1 or 2 position, the Off mode of an item can be selected and/or the level of an item can be decreased in the menu.

When the User Set Switch is set to the OFF position, the display On/Off of the zebra pattern into the viewfinder can be controlled by pressing this switch.

Picture images exceeding a specified level (95 IRE) will produce a zebra pattern barely visible.

Note: The zebra level can be set by the Sub Menu.

17. Clean DNR (Digital Noise Reduction) Selection Switch (DNR OFF, LOW, HIGH)

This switch is used to improve the S/N ratio on the screen.

18. User Set Switch (USER SET 2, 1, OFF)

By setting this switch to the 1 position, a Menu selected by the Scene File Switch is displayed in the viewfinder and menu setting is available.

By setting this switch to the 2 position, a Menu selected by the Scene File Selection Switch is displayed in the viewfinder and the monitor.

To display the normal picture in the viewfinder or on the monitor, set this switch to the OFF position. (The menu is kept under the last condition)

Note: To select the USER A or USER B menu, set the Scene File Selection Switch (10) to the USER position while pressing the Page Switch (13) or Check Button (25).

When setting the Scene File Selection Switch (10) to the USER position without the Page Switch or Check Button, the last selected menu of USER A or B is displayed.

19. High Light Chroma Switch (HL CHROMA ON/OFF)

This switch is used to obtain the good picture in the high brightness condition.

By setting this switch to the ON position, the low or high level can be selected in the Sub Menu or User Set menu.

Note: When the HL CHROMA is set to the HIGH position, the object in the high brightness condition might be coloured.

20. Detail Level Selection Switch (DTL, LEVEL-HIGH/LOW/OFF)

The detail/aperture level can be selected by this switch in three steps. Set this switch to the desired position while observing the sharpness of the picture.

Note: When over modulation has occurred with recording or playing back the VTR, set this switch to LOW position.

21. Recording Time Reset Button (RESET)

The accumulated recording time is displayed in the viewfinder under REC TIME while the Check Button (25) is pressed. The time can be reset to "0 MIN" by pressing either this button or the one on the AG-7450A VTR. Thus, total recording time can easily be checked by first pressing this button at the outset of a new recording and then checking REC Time at the end of the recording by pressing the check button .

Note: The REC TIME displayed in the viewfinder and the one displayed on the AG-7450A might be different.

22. Lens Iris Control (IRIS)

The auto iris level can be adjusted by this control. When replacing the lens, check the output signal of the camera and make any necessary adjustment with this control, if required.

23. Total Pedestal Level Control (T. PED)

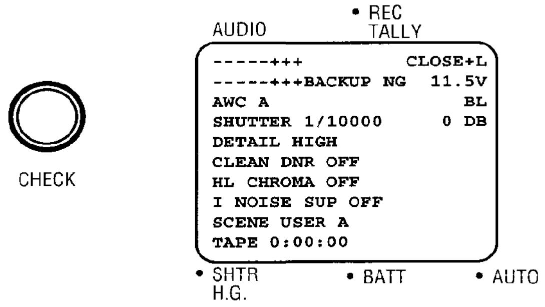
This control is used for adjusting the pedestal level of the video signal (luminance). When attempting to match the pedestal level of two or more cameras in a system, use a waveform monitor or oscilloscope for precise adjustment.

24. Audio Level Control (AUDIO)

Only when the MII format VTR AU-45H is connected, the microphone level can be adjusted.

25. Check Button (CHECK)

The operating conditions of the camera can be displayed in the viewfinder by keeping this button pressed.



```
-----+++             CLOSE+L
-----+++BACKUP NG      11.5V
AWC A                     BL
SHUTTER 1/10000         0 DB
DETAIL HIGH
CLEAN DNR OFF
HL CHROMA OFF
I NOISE SUP OFF
SCENE USER A
TAPE 0:00:00
```

26. Power Switch (DC POWER, OFF/SAVE/ON)

This switch selects the operating mode of the camera.

27. Colour Bar/Night Eye/Camera Selection Switch (BAR/N.E/CAMERA)

BAR: Set this position to display the colour bar.

N.E.: Set this position to shoot the object in the dark scene (Night Eye mode).
The High Gain Selection Switch (29) can not work in this mode.

CAMERA: By selecting this position, gain-up level can be set by the High Gain Selection Switch (29).

28. White Balance Selection Switch (AUTO/ATW ATW/A/B)

This switch is used to white balance mode as follows.

ATW: The white balance can be adjusted automatically.

A: The white balance can be set automatically by pressing the Auto White/Auto Black Set Switch (6) upwards. The setting is stored in memory A.

B: Similar to A, but the setting is stored in memory B.

29. High Gain Selection Switch (GAIN LOW/ MID/HIGH)

This switch is used to select the gain level.

The gain level can be set in the Sub Menu with the combination shown below.

HIGH	MID	LOW
18 dB	9 dB	0 dB
24 dB	12 dB	0 dB
12 dB	6 dB	0 dB
6 dB	3 dB	0 dB
12 dB	0 dB	–6 dB
6 dB	0 dB	–6 dB

Be sure to use the Operation Seat for WV-F565 (provided with WV-RC700A) when operating this camera in combination with the WV-RC700A Remote Control Unit.

30. Lens Hold Ring/Knob

Turn this ring/knob clockwise to secure the lens to the camera.

31. Filter Selection Wheel

This wheel, which has four positions, controls two built-in colour temperature conversion filters and one ND filter.

(1) 3200K - indoor light (tungsten, halogen, quartz lamps)
(2) 5600K +6.25% ND - daylight (sunny)
(3) 5600K - daylight (cloudy/rainy)
(4) Close

Select the position according to the light source.

Caution: If the incorrect filter is selected, the Automatic White Balance Setting may not be successfully completed.

32. Viewfinder Lock Lever

The viewfinder's position is locked or released through the use of this lever. When the lever is released, the viewfinder can be slid approximately 45 mm (1-3/4") laterally and 20 mm (13/16") back and forth. Be sure to lock the level after having adjusted the viewfinder position.

33. Viewfinder Mounting Base

The 1.5" Electronic Viewfinder, WV-VF42, is mounted on the camera by first installing this base onto the camera.

34. Microphone

This Microphone is a nondirectional condenser microphone. When sound from the surroundings is not desired, use the optional Microphone WM-L30 and Microphone Holder WV-MH500.

35. Viewfinder Height Adjustment Knob (UP/ DOWN)

The height of the viewfinder can be adjusted by first loosening this knob, adjusting the viewfinder to the proper height, and then tightening this knob.

Adjustment of up to 20 mm (13/16") is possible.

36. Monitor Output Connector (MONITOR)

A composite video signal for monitoring is provided at this connector.

Note: This output signal might differ slightly from the output signal of the Video Output Connector.

37. Remote Control Box Connector (RCB)

This connector is provided for the Remote Control Box (RCB) connection.

Note: When connecting the BNC Cable to the Monitor Output Connecter (36), the video signal from this connector through the Remote Control Box can not be output.

38. Power Indicator

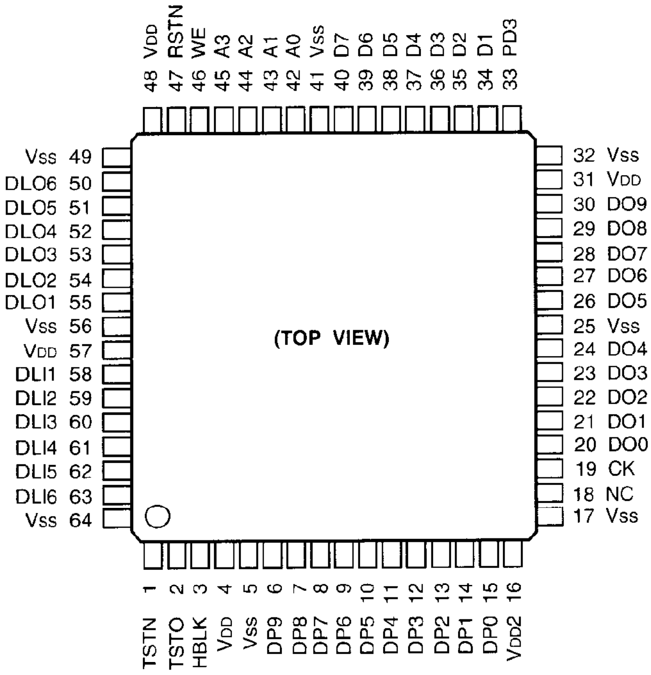
This indicator lights red when the camera is operating. When the camera is in the standby mode, the indicator lights green.

CIRCUIT DESCRIPTION

IC Description

1. Digital Process Board

1.1. IC4 to IC6 on the Digital Process Board are using the Digital Noise Reduction IC YWL7A1245.
Description of this IC is as follows:

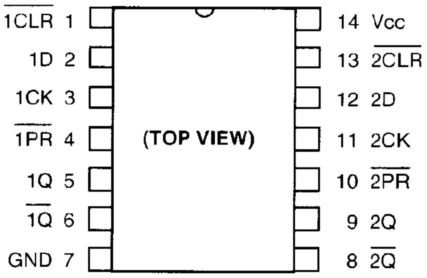

48 VDD
47 RSTN
46 WE
45 A3
44 A2
43 A1
42 A0
41 Vss
40 D7
39 D6
38 D5
37 D4
36 D3
35 D2
34 D1
33 PD3
Vss 49
DLO6 50
DLO5 51
DLO4 52
DLO3 53
DLO2 54
DLO1 55
Vss 56
VDD 57
DLI1 58
DLI2 59
DLI3 60
DLI4 61
DLI5 62
DLI6 63
Vss 64
32 Vss
31 VDD
30 DO9
29 DO8
28 DO7
27 DO6
26 DO5
25 Vss
24 DO4
23 DO3
22 DO2
21 DO1
20 DO0
19 CK
18 NC
17 Vss
(TOP VIEW)
1 TSTN
2 TSTO
3 HBLK
4 VDD
5 Vss
6 DP9
7 DP8
8 DP7
9 DP6
10 DP5
11 DP4
12 DP3
13 DP2
14 DP1
15 DP0
16 VDD2

Pin	Name	I/O	Description
1	TSTN	I	TSTN signal input terminal.
2	TSTO	O	TSTO signal output terminal.
3	HBLK	I	HBLK signal output terminal.
4	VDD	–	Power supply terminal.
5	Vss	–	Ground Terminal
6	DP9	I	DP signal input terminals. (10-Bit)
7	DP8	I	
8	DP7	I	
9	DP6	I	
10	DP5	I	
11	DP4	I	
12	DP3	I	
13	DP2	I	
14	DP1	I	
15	DP0	I	
16	VDD2	–	Power supply terminal.
17	Vss	–	Ground terminal.
18	N.C.	–	Non connection

Pin	Name	I/O	Description
19	CK	I	Clock Pulse input terminal.
20	DO0	O	Data output terminals. (10-Bit)
21	DO1	O	
22	DO2	O	
23	DO3	O	
24	DO4	O	
25	Vss	–	Ground terminal.
26	DO5	O	Data output terminals. (10-Bit)
27	DO6	O	
28	DO7	O	
29	DO8	O	
30	DO9	O	
31	VDD	–	Power supply terminal.
32	Vss	–	Ground terminal.
33	D0	O	Data output terminals. (8-Bit)
34	D1	O	
35	D2	O	
36	D3	O	

Pin	Name	I/O	Description
37	D4	O	Data output terminals. (8-Bit)
38	D5	O	
39	D6	O	
40	D7	O	
41	Vss	–	Ground terminal.
42	A0	I	Address input terminals for external ROM IC.
43	A1	I	
44	A2	I	
45	A3	I	
46	WE	I	Write Enable signal input terminal.
47	RSTN	I	Reset signal input terminal.
48	VDD	–	Power supply terminal.
49	Vss	–	Ground terminal.
50	DLO6	O	DLO signal output terminals.
51	DLO5	O	
52	DLO4	O	
53	DLO3	O	
54	DLO2	O	
55	DLO1	O	
56	Vss	–	Ground terminal.
57	VDD	–	Power supply terminal.
58	DLI1	I	DLI signal input terminals.
59	DLI2	I	
60	DLI3	I	
61	DLI4	I	
62	DLI5	I	
63	DLI6	I	
64	Vss	–	Ground terminal.

1.2. IC17 on the Digital Process Board is using the Dual D-FFs with Preset and Clear IC YWMC74HC74AF. Description of this IC is as follows:

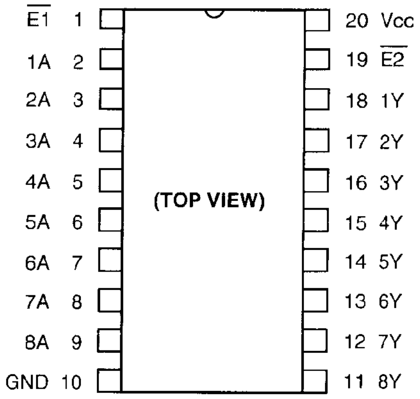

$\overline{1CLR}$ 1
1D 2
1CK 3
$\overline{1PR}$ 4
1Q 5
$\overline{1Q}$ 6
GND 7
14 Vcc
13 $\overline{2CLR}$
12 2D
11 2CK
10 $\overline{2PR}$
9 2Q
8 $\overline{2Q}$
(TOP VIEW)

Truth Table

INPUTS				OUTPUTS		Function
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\overline{Q}$	
L	H	*	*	L	H	Clear
H	L	*	*	H	L	Preset
L	L	*	*	H	H	——
H	H	L	↑	L	H	——
H	H	H	↑	H	L	——
H	H	*	↓	Qn	$\overline{Qn}$	No Change

* : Don't care.

1.3. IC19 on the Digital Process Board is using the Octal 3-State Bus Buffers IC YWMC74AC541M. Description of this IC is as follows:

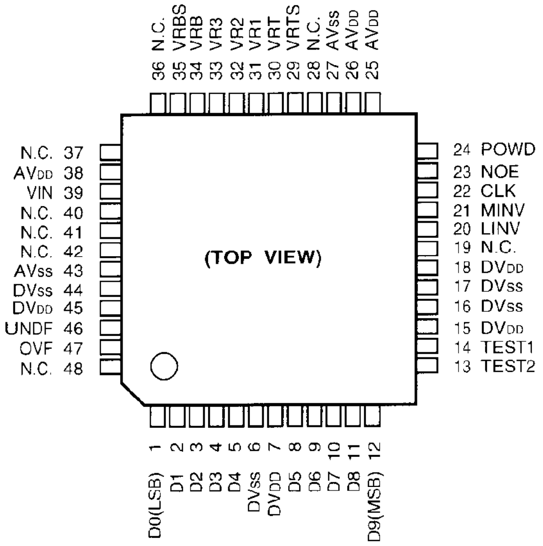

$\overline{E1}$ 1
1A 2
2A 3
3A 4
4A 5
5A 6
6A 7
7A 8
8A 9
GND 10
20 Vcc
19 $\overline{E2}$
18 1Y
17 2Y
16 3Y
15 4Y
14 5Y
13 6Y
12 7Y
11 8Y
(TOP VIEW)

Truth Table

INPUTS		OUTPUT
$\overline{E1}$	$\overline{E2}$	Y
L	L	A
H	*	Z
*	H	

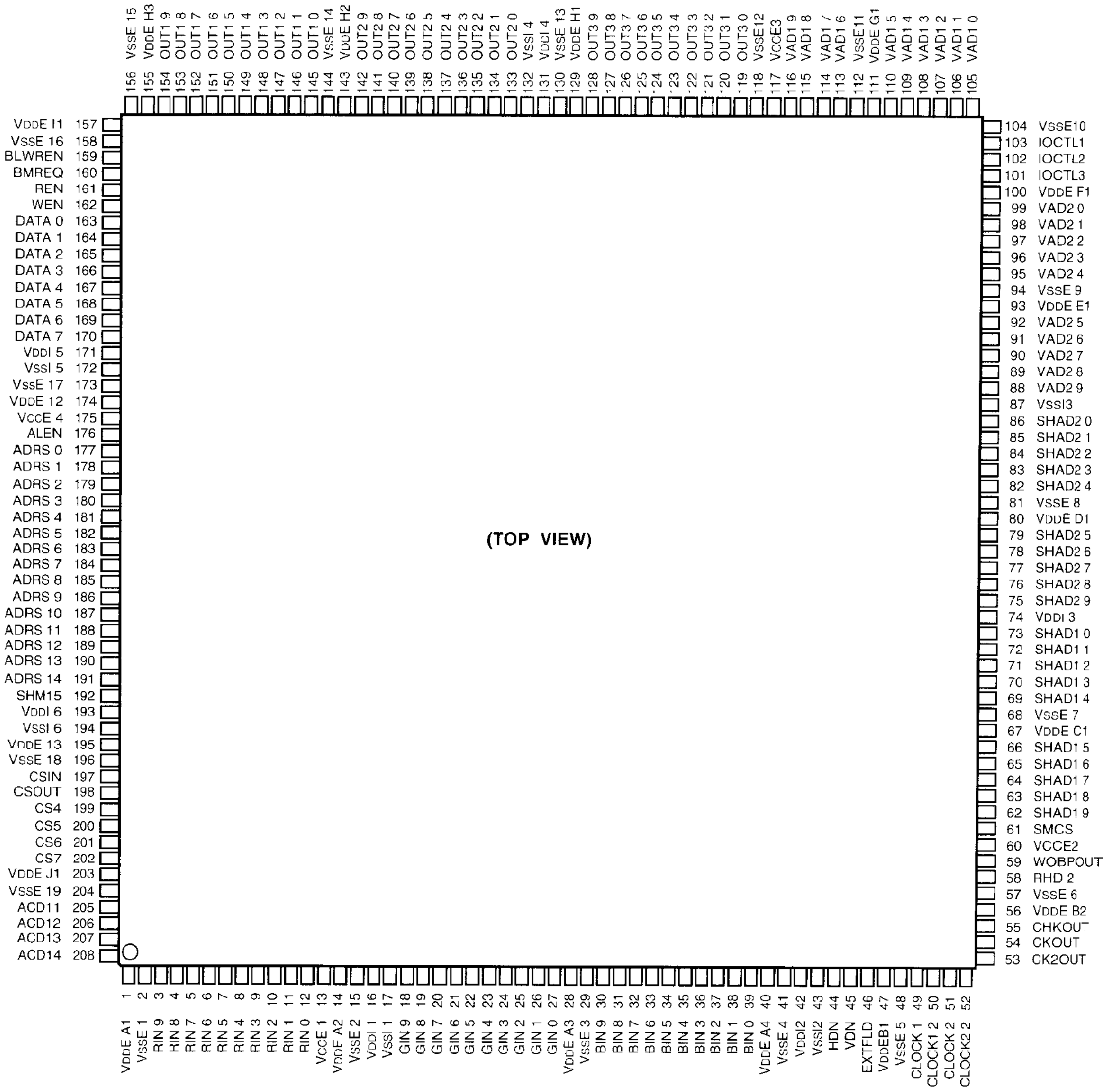
* : Don't care.
Z : High Impedance

1.4. IC1 and IC3 on the Digital Process Board are using the A/D Converter IC MN6577H.
Description of this IC is as follows:


36 N.C.
35 VRBS
34 VRB
33 VR3
32 VR2
31 VR1
30 VRT
29 VRTS
28 N.C.
27 AVss
26 AVDD
25 AVDD
N.C. 37
AVDD 38
VIN 39
N.C. 40
N.C. 41
N.C. 42
AVss 43
DVss 44
DVDD 45
UNDF 46
OVF 47
N.C. 48
(TOP VIEW)
24 POWD
23 NOE
22 CLK
21 MINV
20 LINV
19 N.C.
18 DVDD
17 DVss
16 DVss
15 DVDD
14 TEST1
13 TEST2
1 D0(LSB)
2 D1
3 D2
4 D3
5 D4
6 DVss
7 DVDD
8 D5
9 D6
10 D7
11 D8
12 D9(MSB)

Pin	Name	I/O	Description
1	D0	O	(LSB) Data output terminals. (10-Bit)
2	D1	O	
3	D2	O	
4	D3	O	
5	D4	O	
6	DVss	–	Ground terminal for Digital circuit.
7	DVDD	–	Power supply terminal for Digital circuits.
8	D5	O	Data output terminals. (10-Bit)
9	D6	O	
10	D7	O	
11	D8	O	
12	D9	O	(MSB)
13	TEST2	I	TEST signal input terminal.
14	TEST1	I	TEST signal input terminal.
15	DVDD	–	Power supply terminal for Digital circuits.
16	DVss	–	Ground terminal for Digital circuit.
17	DVss	–	Ground terminal for Digital circuit.
18	DVDD	–	Power supply terminal for Digital circuits.
19	N.C.	–	Non Connection.
20	LINV	I	LINV signal input terminal.
21	MINV	I	LINV signal input terminal.
22	CLK	I	CLOCK signal input terminal.
23	NOE	I	NOE signal input terminal.
24	POWD	I	POWD signal input terminal.
25	AVDD	–	Power supply terminal for Analog circuits.
26	AVDD	–	Power supply terminal for Analog circuits.
27	AVss	–	Ground terminal for Analog circuits.
28	N.C.	–	Non Connection.
29	VRTS	I	Top voltage input terminal.
30	VRT	I	Top voltage input terminal.
31	VR1	O	VR signal output terminals.
32	VR2	O	
33	VR3	O	
34	VRB	I	Bottom voltage input terminal.
35	VRBS	I	Bottom voltage input terminal.
36	N.C.	–	Non Connection.
37	N.C.	–	Non Connection.
38	AVDD	–	Power supply terminal for Analog circuit.
39	VIN	I	Video signal input terminal.
40	N.C.	–	Non Connection.
41	N.C.	–	Non Connection.
42	N.C.	–	Non Connection.
43	AVss	–	Ground terminal for Analog circuits.
44	DVss	–	Ground terminal for Digital circuits.
45	DVDD	–	Power supply terminal for Digital circuits.
46	UNDF	I	UNDF signal input terminal.
47	OVF	I	OVF signal input terminal.
48	N.C.	–	Non Connection.

1.5. IC7 on the Digital Process Board is using the Chroma DSP IC YWVY06632.
Description of this IC is as follows:


(TOP VIEW)
156 VSSE 15
155 VDDE H3
154 OUT1 9
153 OUT1 8
152 OUT1 7
151 OUT1 6
150 OUT1 5
149 OUT1 4
148 OUT1 3
147 OUT1 2
146 OUT1 1
145 OUT1 0
144 VSSE 14
143 VDDE H2
142 OUT2 9
141 OUT2 8
140 OUT2 7
139 OUT2 6
138 OUT2 5
137 OUT2 4
136 OUT2 3
135 OUT2 2
134 OUT2 1
133 OUT2 0
132 VSSI 4
131 VDDI 4
130 VSSE 13
129 VDDE H1
128 OUT3 9
127 OUT3 8
126 OUT3 7
125 OUT3 6
124 OUT3 5
123 OUT3 4
122 OUT3 3
121 OUT3 2
120 OUT3 1
119 OUT3 0
118 VSSE12
117 VCCE3
116 VAD1 9
115 VAD1 8
114 VAD1 7
113 VAD1 6
112 VSSE11
111 VDDE G1
110 VAD1 5
109 VAD1 4
108 VAD1 3
107 VAD1 2
106 VAD1 1
105 VAD1 0
VDDE I1 157
VSSE 16 158
BLWREN 159
BMREQ 160
REN 161
WEN 162
DATA 0 163
DATA 1 164
DATA 2 165
DATA 3 166
DATA 4 167
DATA 5 168
DATA 6 169
DATA 7 170
VDDI 5 171
VSSI 5 172
VSSE 17 173
VDDE 12 174
VCCE 4 175
ALEN 176
ADRS 0 177
ADRS 1 178
ADRS 2 179
ADRS 3 180
ADRS 4 181
ADRS 5 182
ADRS 6 183
ADRS 7 184
ADRS 8 185
ADRS 9 186
ADRS 10 187
ADRS 11 188
ADRS 12 189
ADRS 13 190
ADRS 14 191
SHM15 192
VDDI 6 193
VSSI 6 194
VDDE 13 195
VSSE 18 196
CSIN 197
CSOUT 198
CS4 199
CS5 200
CS6 201
CS7 202
VDDE J1 203
VSSE 19 204
ACD11 205
ACD12 206
ACD13 207
ACD14 208
104 VSSE10
103 IOCTL1
102 IOCTL2
101 IOCTL3
100 VDDE F1
99 VAD2 0
98 VAD2 1
97 VAD2 2
96 VAD2 3
95 VAD2 4
94 VSSE 9
93 VDDE E1
92 VAD2 5
91 VAD2 6
90 VAD2 7
89 VAD2 8
88 VAD2 9
87 VSSI3
86 SHAD2 0
85 SHAD2 1
84 SHAD2 2
83 SHAD2 3
82 SHAD2 4
81 VSSE 8
80 VDDE D1
79 SHAD2 5
78 SHAD2 6
77 SHAD2 7
76 SHAD2 8
75 SHAD2 9
74 VDDI 3
73 SHAD1 0
72 SHAD1 1
71 SHAD1 2
70 SHAD1 3
69 SHAD1 4
68 VSSE 7
67 VDDE C1
66 SHAD1 5
65 SHAD1 6
64 SHAD1 7
63 SHAD1 8
62 SHAD1 9
61 SMCS
60 VCCE2
59 WOBPOUT
58 RHD 2
57 VSSE 6
56 VDDE B2
55 CHKOUT
54 CKOUT
53 CK2OUT
1 VDDE A1
2 VSSE 1
3 RIN 9
4 RIN 8
5 RIN 7
6 RIN 6
7 RIN 5
8 RIN 4
9 RIN 3
10 RIN 2
11 RIN 1
12 RIN 0
13 VCCE 1
14 VDDE A2
15 VSSE 2
16 VDDI 1
17 VSSI 1
18 GIN 9
19 GIN 8
20 GIN 7
21 GIN 6
22 GIN 5
23 GIN 4
24 GIN 3
25 GIN 2
26 GIN 1
27 GIN 0
28 VDDE A3
29 VSSE 3
30 BIN 9
31 BIN 8
32 BIN 7
33 BIN 6
34 BIN 5
35 BIN 4
36 BIN 3
37 BIN 2
38 BIN 1
39 BIN 0
40 VDDE A4
41 VSSE 4
42 VDDI2
43 VSSI2
44 HDN
45 VDN
46 EXTFLD
47 VDDEB1
48 VSSE 5
49 CLOCK 1
50 CLOCK1 2
51 CLOCK 2
52 CLOCK2 2

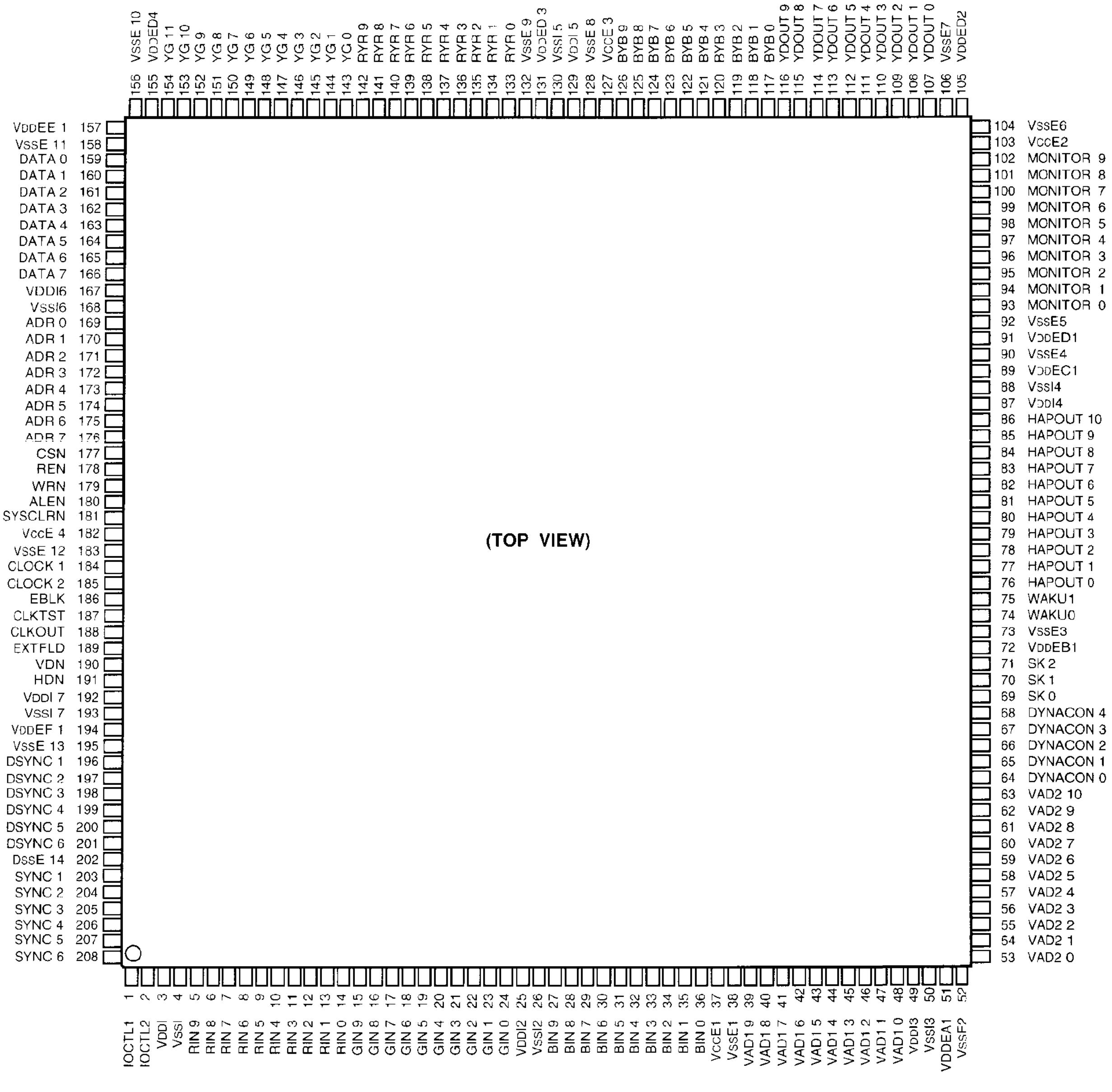
Pin	Name	I/O	Description
1	VDDE A1	–	Power supply terminal.
2	VssE1	–	Ground terminal.
3	RIN 9	I	R signal input terminals. (10-Bit)
4	RIN 8	I	
5	RIN 7	I	
6	RIN 6	I	
7	RIN 5	I	
8	RIN 4	I	
9	RIN 3	I	
10	RIN 2	I	

Pin	Name	I/O	Description
11	RIN 1	I	R signal input terminals. (10-Bit)
12	RIN 0	I	
13	VccE 1	–	Power supply terminal.
14	VDDE A2	–	Power supply terminal.
15	VssE 2	–	Ground terminal.
16	VDDI 1	–	Power supply terminal.
17	VssI 1	–	Ground terminal.
18	GIN 9	I	G signal input terminal. (10-Bit)
19	GIN 8	I	
20	GIN 7	I	

Pin	Name	I/O	Description
21	GIN 6	I	G signal input terminals. (10-Bit)
22	GIN 5	I	
23	GIN 4	I	
24	GIN 3	I	
25	GIN 2	I	
26	GIN 1	I	
27	GIN 0	I	
28	VDDE A3	–	Power Supply terminal.
29	VssE 3	–	Ground terminal.
30	BIN 9	I	B signal input terminals. (10-Bit)
31	BIN 8	I	
32	BIN 7	I	
33	BIN 6	I	
34	BIN 5	I	
35	BIN 4	I	
36	BIN 3	I	
37	BIN 2	I	
38	BIN 1	I	
39	BIN 0	I	
40	VDDE A4	–	Power Supply terminal.
41	VssE 4	–	Ground terminal.
42	VDDI 2	–	Power Supply terminal.
43	VssI 2	–	Ground terminal.
44	HDN	I	Horizontal Drive Pulse input terminal.
45	VDN	I	Vertical Drive Pulse input terminal.
46	EXTFLD	I	External Field Pulse input terminal.
47	VDDE B1	I	Power Supply terminal.
48	VssE 5	I	Ground terminal.
49	CLOCK1	I	Clock Pulse input terminals.
50	CLOCK1 2	I	
51	CLOCK2	I	
52	CLOCK2 2	I	
53	CK2OUT	O	Clock Pulse output terminal.
54	CKOUT	O	Clock Pulse output terminal.
55	CHKOUT	O	CHK signal output terminal.
56	VDDE B2	–	Power Supply terminal.
57	VssE 6	–	Ground terminal.
58	RHD 2	O	RHD signal output terminal.
59	WOBPOUT	O	WOBP signal output terminal.
60	VccE 2	–	Power Supply terminal.
61	SMCS	O	SMCS signal output terminal.
62	SHAD1 9	I/O	Shading signal input/output terminals.
63	SHAD1 8	I/O	
64	SHAD1 7	I/O	
65	SHAD1 6	I/O	
66	SHAD1 5	I/O	
67	VDDEC1	–	Power Supply terminal.
68	VssE 7	–	Ground terminal.
69	SHAD1 4	I/O	Shading signal input/output terminals.
70	SHAD1 3	I/O	
71	SHAD1 2	I/O	
72	SHAD1 1	I/O	
73	SHAD1 0	I/O	
74	VDDI 3	–	Power Supply terminal.
75	SHAD2 9	O	Shading signal output terminals.
76	SHAD2 8	O	
77	SHAD2 7	O	
78	SHAD2 6	O	
79	SHAD2 5	O	
80	VDDED1	–	Power Supply termianl.
81	VssE 8	–	Ground terminal.
82	SHAD2 4	O	Shading signal output terminals.
83	SHAD2 3	O	
84	SHAD2 2	O	
85	SHAD2 1	O	
86	SHAD2 0	O	
87	VssI3	–	Power Supply termianl.
88	VAD2 9	I/O	VAD signal input/output terminals.
89	VAD2 8	I/O	
90	VAD2 7	I/O	
91	VAD2 6	I/O	
92	VAD2 5	I/O	
93	VDDEE1	–	Power Supply termianl.
94	VssE9	–	Ground terminal.
95	VAD2 4	I/O	VAD signal inupt/output terminals.
96	VAD2 3	I/O	
97	VAD2 2	I/O	
98	VAD2 1	I/O	
99	VAD2 0	I/O	
100	VDDEF1	–	Power supply terminal.
101	IOCTL3	I	IOCTL signal input terminal.
102	IOCTL2	I	
103	IOCTL1	I	
104	Vss10	–	Power supply terminal.
105	VAD1 0	I/O	VAD signal input/output terminals.
106	VAD1 1	I/O	
107	VAD1 2	I/O	
108	VAD1 3	I/O	
109	VAD1 4	I/O	
110	VAD1 5	I/O	
111	VDDE G1	–	Power Supply terminal.
112	VssE 11	–	Ground terminal.
113	VAD1 6	I/O	VAD signal input/output terminals.
114	VAD1 7	I/O	
115	VAD1 8	I/O	
116	VAD1 9	I/O	

Pin	Name	I/O	Description
117	VccE 3	–	Power Supply terminal.
118	VssE 12	–	Ground terminal.
119	OUT3 0	O	B Data output terminals. (10-Bit)
120	OUT3 1	O	
121	OUT3 2	O	
122	OUT3 3	O	
123	OUT3 4	O	
124	OUT3 5	O	
125	OUT3 6	O	
126	OUT3 7	O	
127	OUT3 8	O	
128	OUT3 9	O	
129	VDDE H1	–	Power Supply terminal.
130	VssE 13	–	Ground terminal.
131	VDDI 4	–	Power Supply terminal.
132	VssI 4	–	Ground terminal.
133	OUT2 0	O	G Data output terminals. (10-Bit)
134	OUT2 1	O	
135	OUT2 2	O	
136	OUT2 3	O	
137	OUT2 4	O	
138	OUT2 5	O	
139	OUT2 6	O	
140	OUT2 7	O	
141	OUT2 8	O	
142	OUT2 9	O	
143	VDDE H2	–	Power Supply terminal.
144	VssE 14	–	Ground terminal.
145	OUT1 0	O	R Data output terminals. (10-Bit)
146	OUT1 1	O	
147	OUT1 2	O	
148	OUT1 3	O	
149	OUT1 4	O	
150	OUT1 5	O	
151	OUT1 6	O	
152	OUT1 7	O	
153	OUT1 8	O	
154	OUT1 9	O	
155	VDDE H3	–	Power Supply terminal.
156	VssE 15	–	Ground terminal.
157	VDDE I1	–	Power Supply terminal.
158	VssE 16	–	Ground terminal.
159	BLWREN	O	BLWREN signal output terminal.
160	BMREQ	O	BMREQ signal output terminal.
161	REN	I	Read Enable signal input terminal.
162	WEN	I	Write Enable signal input terminal.
163	DATA0	I/O	Data signal input/output terminals. (8-Bit)
164	DATA1	I/O	
165	DATA2	I/O	
166	DATA3	I/O	
167	DATA4	I/O	
168	DATA5	I/O	Data input/output terminals. (8-Bit)
169	DATA6	I/O	
170	DATA7	I/O	
171	VDDI 5	–	Power Supply terminal.
172	VssI 5	–	Ground terminal.
173	VssE 17	–	Ground terminal.
174	VDDE 12	–	Power supply terminal.
175	VccE 4	–	Ground terminal.
176	ALEN	I	ALEN signal input terminal.
177	ADRS0	I	Address signal input terminals. (15-Bit)
178	ADRS1	I	
179	ADRS2	I	
180	ADRS3	I	
181	ADRS4	I	
182	ADRS5	I	
183	ADRS6	I	
184	ADRS7	I	
185	ADRS8	I	
186	ADRS9	I	
187	ADRS10	I	
188	ADRS11	I	
189	ADRS12	I	
190	ADRS13	I	
191	ADRS14	I	
192	SHM15	I	SHM signal input terminal.
193	VDDI 6	–	Power Supply terminal.
194	VssI 6	–	Ground terminal.
195	VDDE I3	–	Power Supply terminal.
196	VssE 18	–	Ground terminal.
197	CSIN	I	Chip Select signal input terminal.
198	CSOUT	O	Chip Select signal output terminal.
199	CS4	O	Chip select signal output terminals.
200	CS5	O	
201	CS6	O	
202	CS7	O	
203	VDDE J1	–	Power supply terminal.
204	VssE 19	–	Ground terminal.
205	ACD11	I	ACD signal input terminals.
206	ACD12	I	
207	ACD13	I	
208	ACD14	I	

1.6. IC8 on the Digital Process Board is using the Chroma DSP IC YWVY06633.
Description of this IC is as follows:


156 VSSE 10
155 VDDED4
154 YG 11
153 YG 10
152 YG 9
151 YG 8
150 YG 7
149 YG 6
148 YG 5
147 YG 4
146 YG 3
145 YG 2
144 YG 1
143 YG 0
142 RYR 9
141 RYR 8
140 RYR 7
139 RYR 6
138 RYR 5
137 RYR 4
136 RYR 3
135 RYR 2
134 RYR 1
133 RYR 0
132 VSSE 9
131 VDDED 3
130 VSSI 5
129 VDDI 5
128 VSSE 8
127 VCCE 3
126 BYB 9
125 BYB 8
124 BYB 7
123 BYB 6
122 BYB 5
121 BYB 4
120 BYB 3
119 BYB 2
118 BYB 1
117 BYB 0
116 YDOUT 9
115 YDOUT 8
114 YDOUT 7
113 YDOUT 6
112 YDOUT 5
111 YDOUT 4
110 YDOUT 3
109 YDOUT 2
108 YDOUT 1
107 YDOUT 0
106 VSSE7
105 VDDED2
VDDEE 1 157
VSSE 11 158
DATA 0 159
DATA 1 160
DATA 2 161
DATA 3 162
DATA 4 163
DATA 5 164
DATA 6 165
DATA 7 166
VDDI6 167
VSSI6 168
ADR 0 169
ADR 1 170
ADR 2 171
ADR 3 172
ADR 4 173
ADR 5 174
ADR 6 175
ADR 7 176
CSN 177
REN 178
WRN 179
ALEN 180
SYSCLRN 181
VCCE 4 182
VSSE 12 183
CLOCK 1 184
CLOCK 2 185
EBLK 186
CLKTST 187
CLKOUT 188
EXTFLD 189
VDN 190
HDN 191
VDDI 7 192
VSSI 7 193
VDDEF 1 194
VSSE 13 195
DSYNC 1 196
DSYNC 2 197
DSYNC 3 198
DSYNC 4 199
DSYNC 5 200
DSYNC 6 201
DSSE 14 202
SYNC 1 203
SYNC 2 204
SYNC 3 205
SYNC 4 206
SYNC 5 207
SYNC 6 208
(TOP VIEW)
104 VSSE6
103 VCCE2
102 MONITOR 9
101 MONITOR 8
100 MONITOR 7
99 MONITOR 6
98 MONITOR 5
97 MONITOR 4
96 MONITOR 3
95 MONITOR 2
94 MONITOR 1
93 MONITOR 0
92 VSSE5
91 VDDED1
90 VSSE4
89 VDDEC1
88 VSSI4
87 VDDI4
86 HAPOUT 10
85 HAPOUT 9
84 HAPOUT 8
83 HAPOUT 7
82 HAPOUT 6
81 HAPOUT 5
80 HAPOUT 4
79 HAPOUT 3
78 HAPOUT 2
77 HAPOUT 1
76 HAPOUT 0
75 WAKU1
74 WAKU0
73 VSSE3
72 VDDEB1
71 SK 2
70 SK 1
69 SK 0
68 DYNACON 4
67 DYNACON 3
66 DYNACON 2
65 DYNACON 1
64 DYNACON 0
63 VAD2 10
62 VAD2 9
61 VAD2 8
60 VAD2 7
59 VAD2 6
58 VAD2 5
57 VAD2 4
56 VAD2 3
55 VAD2 2
54 VAD2 1
53 VAD2 0
1 IOCTL1
2 IOCTL2
3 VDDI
4 VSSI
5 RIN 9
6 RIN 8
7 RIN 7
8 RIN 6
9 RIN 5
10 RIN 4
11 RIN 3
12 RIN 2
13 RIN 1
14 RIN 0
15 GIN 9
16 GIN 8
17 GIN 7
18 GIN 6
19 GIN 5
20 GIN 4
21 GIN 3
22 GIN 2
23 GIN 1
24 GIN 0
25 VDDI2
26 VSSI2
27 BIN 9
28 BIN 8
29 BIN 7
30 BIN 6
31 BIN 5
32 BIN 4
33 BIN 3
34 BIN 2
35 BIN 1
36 BIN 0
37 VCCE1
38 VSSE1
39 VAD1 9
40 VAD1 8
41 VAD1 7
42 VAD1 6
43 VAD1 5
44 VAD1 4
45 VAD1 3
46 VAD1 2
47 VAD1 1
48 VAD1 0
49 VDDI3
50 VSSI3
51 VDDEA1
52 VSSF2

Pin	Name	I/O	Description
1	IOCTL1	I	IO Control signal input terminal.
2	IOCTL2	I	IO Control signal input terminal.
3	VDDI	–	Power supply terminal.
4	VssI	–	Ground terminal.
5	RIN 9	I	R signal input terminals. (10-Bit)
6	RIN 8	I	
7	RIN 7	I	
8	RIN 6	I	
9	RIN 5	I	
10	RIN 4	I	

Pin	Name	I/O	Description
11	RIN 3	I	R signal input terminals. (10-Bit)
12	RIN 2	I	
13	RIN 1	I	
14	RIN 0	I	
15	GIN 9	I	G signal input terminals. (10-Bit)
16	GIN 8	I	
17	GIN 7	I	
18	GIN 6	I	
19	GIN 5	I	
20	GIN 4	I	

Pin	Name	I/O	Description
21	GIN 3	I	G signal input terminals. (10-Bit)
22	GIN 2	I	
23	GIN 1	I	
24	GIN 0	I	
25	VDDI 2	–	Power Supply terminal.
26	VssI 2	–	Ground terminal.
27	BIN 9	I	B signal input terminals. (10-Bit)
28	BIN 8	I	
29	BIN 7	I	
30	BIN 6	I	
31	BIN 5	I	
32	BIN 4	I	
33	BIN 3	I	
34	BIN 2	I	
35	BIN 1	I	
36	BIN 0	I	
37	VccE 1	–	Power Supply terminal.
38	VssE 1	–	Ground terminal.
39	VAD1 9	I	VAD1 signal input terminals. (10-Bit)
40	VAD1 8	I	
41	VAD1 7	I	
42	VAD1 6	I	
43	VAD1 5	I	
44	VAD1 4	I	
45	VAD1 3	I	
46	VAD1 2	I	
47	VAD1 1	I	
48	VAD1 0	I	
49	VDDI 3	–	Power Supply terminal.
50	VssI 3	–	Ground terminal.
51	VDDEA 1	–	Power supply terminal.
52	VssE 2	–	Ground terminal.
53	VAD2 0	I	VAD2 signal input terminals. (11-Bit)
54	VAD2 1	I	
55	VAD2 2	I	
56	VAD2 3	I	
57	VAD2 4	I	
58	VAD2 5	I	
59	VAD2 6	I	
60	VAD2 7	I	
61	VAD2 8	I	
62	VAD2 9	I	
63	VAD2 10	I	
64	DYNACON0	I/O	DYNA Control signal input/output terminals.
65	DYNACON1	I/O	
66	DYNACON2	I/O	
67	DYNACON3	I/O	
68	DYNACON4	I/O	
69	SK0	I	SK signal input terminals.
70	SK1	I	
71	SK2	I	

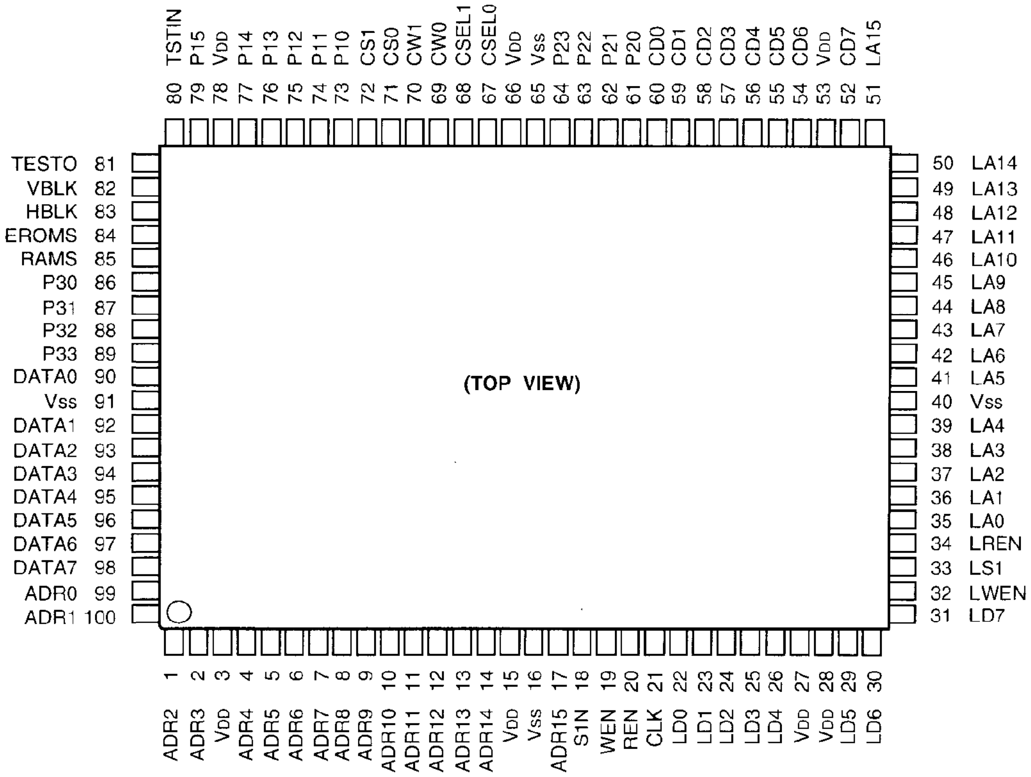
Pin	Name	I/O	Description
72	VDDEB 1	–	Power Supply terminal.
73	VssE 3	–	Ground terminal.
74	WAKU 0	O	Character signal output terminal.
75	WAKU 1	I	Character signal input terminal.
76	HAPAOUT 0	O	HAPA signal output terminals.
77	HAPAOUT 1	O	
78	HAPAOUT 2	O	
79	HAPAOUT 3	O	
80	HAPAOUT 4	O	
81	HAPAOUT 5	O	
82	HAPAOUT 6	O	
83	HAPAOUT 7	O	
84	HAPAOUT 8	O	
85	HAPAOUT 9	O	
86	HAPAOUT10	O	
87	VDDI 4	–	Power Supply termianl.
88	VssI 4	–	Ground terminal.
89	VDDEC1	–	Power Supply termianl.
90	VssE4	–	Ground terminal.
91	VDDED1	–	Power Supply termianl.
92	VssE5	–	Ground terminal.
93	MONITOR 0	O	Monitor signal output terminals. (10-Bit)
94	MONITOR 1	O	
95	MONITOR 2	O	
96	MONITOR 3	O	
97	MONITOR 4	O	
98	MONITOR 5	O	
99	MONITOR 6	O	
100	MONITOR 7	O	
101	MONITOR 8	O	
102	MONITOR 9	O	
103	VccE2	–	Power supply terminal.
104	VssE6	–	Ground terminal.
105	VDDED2	–	Power supply terminal.
106	VssE7	–	Ground terminal.
107	YDOUT0	O	YD signal output terminals. (10-Bit)
108	YDOUT1	O	
109	YDOUT2	O	
110	YDOUT3	O	
111	YDOUT4	O	
112	YDOUT5	O	
113	YDOUT6	O	
114	YDOUT7	O	
115	YDOUT8	O	
116	YDOUT9	O	
117	BYB0	O	BYB signal output terminals. (10-Bit)
118	BYB1	O	
119	BYB2	O	
120	BYB3	O	
121	BYB4	O	

Pin	Name	I/O	Description
122	BYB5	O	BYB signal output terminals. (10-Bit)
123	BYB6	O	
124	BYB7	O	
125	BYB8	O	
126	BYB9	O	
127	VccE 3	–	Power Supply terminal.
128	VssE 8	–	Ground terminal.
129	VDDI 5	–	Power Supply terminal.
130	VssI 5	–	Ground terminal.
131	VDDED 3	–	Power Supply terminal.
132	VssE 9	–	Ground terminal.
133	RYR0	O	RYR signal output terminals. (10-Bit)
134	RYR1	O	
135	RYR2	O	
136	RYR3	O	
137	RYR4	O	
138	RYR5	O	
139	RYR6	O	
140	RYR7	O	
141	RYR8	O	
142	RYR9	O	
143	YG0	O	YG signal output terminals. (12-Bit)
144	YG1	O	
145	YG2	O	
146	YG3	O	
147	YG4	O	
148	YG5	O	
149	YG6	O	
150	YG7	O	
151	YG8	O	
152	YG9	O	
153	YG10	O	
154	YG11	O	
155	VDDED 4	–	Power Supply terminal.
156	VssE 10	–	Ground terminal.
157	VDDEE 1	–	Power Supply terminal.
158	VssE 11	–	Ground terminal.
159	DATA 0	I/O	DATA input/output terminals. (8-Bit)
160	DATA 1	I/O	
161	DATA 2	I/O	
162	DATA 3	I/O	
163	DATA 4	I/O	
164	DATA 5	I/O	
165	DATA 6	I/O	
166	DATA 7	I/O	
167	VDDI 6	–	Power supply terminal.
168	VssI 6	–	Ground terminal.
169	ADR 0	I	Address signal input terminals. (8-Bit)
170	ADR 1	I	
171	ADR 2	I	
172	ADR 3	I	

Pin	Name	I/O	Description
173	ADR 4	I	Address signal input terminals. (8-Bit)
174	ADR 5	I	
175	ADR 6	I	
176	ADR 7	I	
177	CSN	I	Chip Select signal input terminal.
178	REN	I	Read Enable signal input terminal.
179	WRN	I	Write Enable signal input terminal.
180	ALEN	I	ALEN signal input terminal.
181	SYSCLRN	I	SYSCLRN signal input terminal.
182	VccE4	–	Power Supply termianl.
183	VssE12	–	Ground terminal.
184	CLOCK1	I	Clock Pulse input terminal.
185	CLOCK2	I	Clock Pulse input terminal.
186	EBLK	I	EBLK signal input terminal.
187	CLKTST	O	Clock Pulse test terminal.
188	CLKOUT	O	Clock Pulse output terminal.
189	EXTFLD	I	External field signal input terminal.
190	VDN	I	Vertical Drive Pulse input terminal.
191	HDN	I	Horizontal Drive Pulse input terminal.
192	VDDI7	–	Power supply terminal.
193	VssI7	–	Ground terminal.
194	VDDEF1	–	Power supply terminal.
195	VssE13	–	Ground terminal.
196	DSYNC 1	O	Sync signal output terminals.
197	DSYNC 2	O	
198	DSYNC 3	O	
199	DSYNC 4	O	
200	DSYNC 5	O	
201	DSYNC 6	O	
202	VssE14	–	Ground terminal.
203	SYNC1	I	Sync signal input terminals.
204	SYNC2	I	
205	SYNC3	I	
206	SYNC4	I	
207	SYNC5	I	
208	SYNC6	I	

2. System Control Board

2.1. IC1 on the System Control Board is using the Microprocessor I/O Expander IC YWL7A0425.
Description of this IC is as follows:

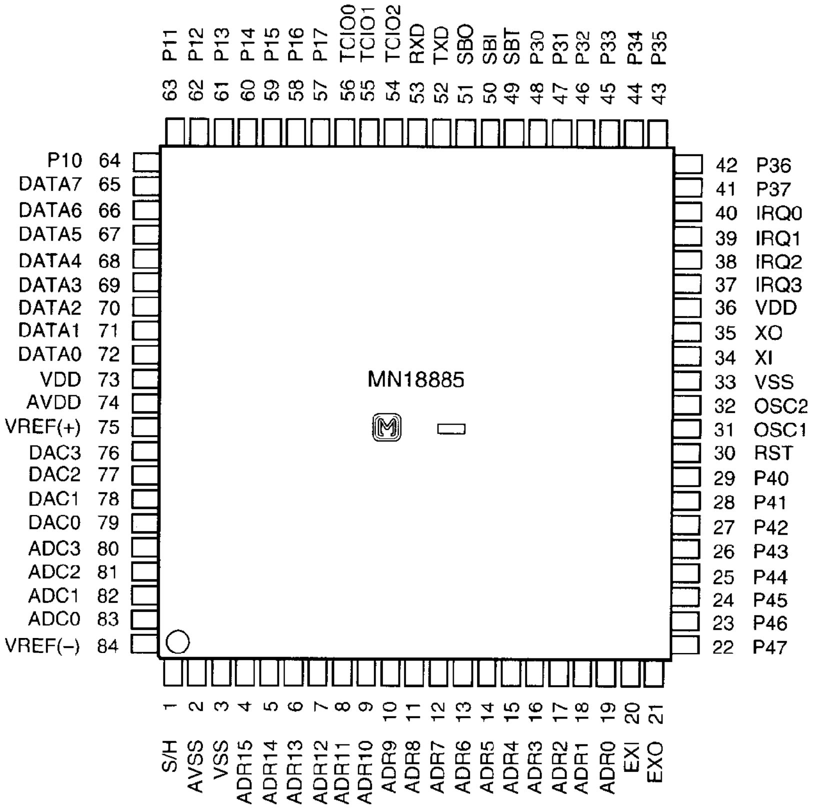

80 TSTIN
79 P15
78 VDD
77 P14
76 P13
75 P12
74 P11
73 P10
72 CS1
71 CS0
70 CW1
69 CW0
68 CSEL1
67 CSEL0
66 VDD
65 Vss
64 P23
63 P22
62 P21
61 P20
60 CD0
59 CD1
58 CD2
57 CD3
56 CD4
55 CD5
54 CD6
53 VDD
52 CD7
51 LA15
TESTO 81
VBLK 82
HBLK 83
EROMS 84
RAMS 85
P30 86
P31 87
P32 88
P33 89
DATA0 90
Vss 91
DATA1 92
DATA2 93
DATA3 94
DATA4 95
DATA5 96
DATA6 97
DATA7 98
ADR0 99
ADR1 100
(TOP VIEW)
50 LA14
49 LA13
48 LA12
47 LA11
46 LA10
45 LA9
44 LA8
43 LA7
42 LA6
41 LA5
40 Vss
39 LA4
38 LA3
37 LA2
36 LA1
35 LA0
34 LREN
33 LS1
32 LWEN
31 LD7
1 ADR2
2 ADR3
3 VDD
4 ADR4
5 ADR5
6 ADR6
7 ADR7
8 ADR8
9 ADR9
10 ADR10
11 ADR11
12 ADR12
13 ADR13
14 ADR14
15 VDD
16 Vss
17 ADR15
18 S1N
19 WEN
20 REN
21 CLK
22 LD0
23 LD1
24 LD2
25 LD3
26 LD4
27 VDD
28 VDD
29 LD5
30 LD6

Pin	Name	I/O	Description
1	ADR2	I	Address signal input terminals from Microprocessor. (16-Bit)
2	ADR3	I	
3	VDD	–	Power supply terminal.
4	ADR4	I	Address signal input terminals from Microprocessor. (16-Bit)
5	ADR5	I	
6	ADR6	I	
7	ADR7	I	
8	ADR8	I	
9	ADR9	I	
10	ADR10	I	
11	ADR11	I	
12	ADR12	I	
13	ADR13	I	
14	ADR14	I	
15	VDD	–	Power supply terminal.
16	Vss	–	Ground terminal.
17	ADR15	I	Address signal (MSB) input terminal from Microprocessor. (16-Bit)

Pin	Name	I/O	Description
18	S1N	I	S1N signal input terminal.
19	WEN	I	Write Enable signal input terminal.
20	REN	I	Read Enable signal input terminal.
21	CLK	I	Clock Pulse input terminal.
22	LD0	I/O	(LSB) Data input/output terminals between Digital Process Board.
23	LD1	I/O	
24	LD2	I/O	
25	LD3	I/O	
26	LD4	I/O	
27	VDD	–	Power supply terminal.
28	VDD	–	Power supply terminal.
29	LD5	I/O	Data input/output terminals between Digital Process Board. (MSB)
30	LD6	I/O	
31	LD7	I/O	
32	LWEN	I	Write Enable signal input terminal.
33	LS1	I	LS1 signal input terminal.
34	LREN	I	Read Enable signal input terminal.

Pin	Name	I/O	Description
35	LA0	O	(LSB) Address signal output terminals for Digital Process Board. (16-Bit)
36	LA1	O	
37	LA2	O	
38	LA3	O	
39	LA4	O	
40	Vss	–	Ground terminal.
41	LA5	O	Address signal output terminals for Digital Process Board. (16-Bit)
42	LA6	O	
43	LA7	O	
44	LA8	O	
45	LA9	O	
46	LA10	O	
47	LA11	O	
48	LA12	O	
49	LA13	O	
50	LA14	O	
51	LA15	O	(MSB)
52	CD7	O	DOWN SW signal output terminal.
53	VDD	–	Power supply terminal.
54	CD6	O	UP SW signal output terminal.
55	CD5	O	LEFT SW signal output terminal.
56	CD4	O	RIGHT SW signal output terminal.
57	CD3	O	FAR SW signal output terminal.
58	CD2	O	NEAR SW signal output terminal.
59	CD1	O	WIDE SW signal output terminal.
60	CD0	O	TELE SW signal output terminal.
61	P20	I	P20 signal input terminal.
62	P21	I	Clock Data input terminal.
63	P22	–	Test point terminal.
64	P23	–	Test point terminal.
65	Vss	–	Ground terminal.
66	VDD	–	Power supply terminal.
67	CSEL0	O	Chip Select 0 signal output terminal.
68	CSEL1	O	Chip Select 1 signal output terminal.
69	CW0	I	CW0 signal input terminal.
70	CW1	I	CW1 signal input terminal.
71	CS0	I	CS0 signal input terminal.
72	CS1	I	CS1 signal input terminal.
73	P10	O	SC CRS2 signal output terminal.
74	P11	O	SC CRS2 signal output terminal.
75	P12	O	DEF SW signal output terminal.
76	P13	O	WIPE SW signal output terminal.
77	P14	O	P14 signal output terminal.
78	VDD	–	Power supply terminal.
79	P15	O	P15 signal output terminal.
80	TSTIN	I	Test signal input terminal.
81	TESTO	O	Test signal output terminal.
82	VBLK	I	VBLK signal input terminal.
83	HBLK	I	HBLK signal input terminal.
84	EROMS	O	EROMS signal output terminal.
85	RAMS	O	RAMS signal output terminal.
86	P30	O	OE signal output terminal.
87	P31	O	CCLK Pulse output terminal.
88	P32	O	P32 signal output terminal.
89	P33	O	P33 signal output terminal.
90	DATA0	I/O	DATA (LSB) input/output terminal between Microprocessor. (8-Bit)
91	Vss	–	Ground terminal.
92	DATA1	I/O	DATA input/out terminals between Microprocessor. (8-Bit)
93	DATA2	I/O	
94	DATA3	I/O	
95	DATA4	I/O	
96	DATA5	I/O	
97	DATA6	I/O	
98	DATA7	I/O	(MSB)
99	ADR0	I	(LSB) Address signal input terminals from Microprocessor. (16-Bit)
100	ADR1	I	

2.2. IC2 on the System Control Board is using the Microprocessor IC YWMN18885.
Description of this IC is as follows:


P11 63
P12 62
P13 61
P14 60
P15 59
P16 58
P17 57
TCIO0 56
TCIO1 55
TCIO2 54
RXD 53
TXD 52
SBO 51
SBI 50
SBT 49
P30 48
P31 47
P32 46
P33 45
P34 44
P35 43
P10 64
DATA7 65
DATA6 66
DATA5 67
DATA4 68
DATA3 69
DATA2 70
DATA1 71
DATA0 72
VDD 73
AVDD 74
VREF(+) 75
DAC3 76
DAC2 77
DAC1 78
DAC0 79
ADC3 80
ADC2 81
ADC1 82
ADC0 83
VREF(-) 84
MN18885
42 P36
41 P37
40 IRQ0
39 IRQ1
38 IRQ2
37 IRQ3
36 VDD
35 XO
34 XI
33 VSS
32 OSC2
31 OSC1
30 RST
29 P40
28 P41
27 P42
26 P43
25 P44
24 P45
23 P46
22 P47
1 S/H
2 AVSS
3 VSS
4 ADR15
5 ADR14
6 ADR13
7 ADR12
8 ADR11
9 ADR10
10 ADR9
11 ADR8
12 ADR7
13 ADR6
14 ADR5
15 ADR4
16 ADR3
17 ADR2
18 ADR1
19 ADR0
20 EXI
21 EXO

(TOP VIEW)

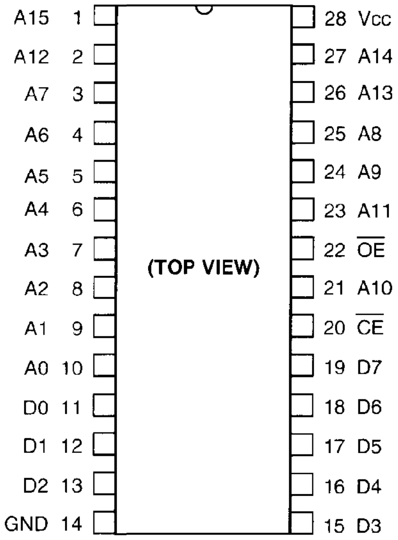
Pin	Name	I/O	Description
1	S/H	I/O	S/H signal input/output terminal.
2	AVss	–	Ground terminal for Analog circuit.
3	Vss	–	Ground terminal.
4	ADR15	O	(MSB) Address output terminals for Microprocessor I/O Expander IC. (16-Bit)
5	ADR14	O	
6	ADR13	O	
7	ADR12	O	
8	ADR11	O	
9	ADR10	O	
10	ADR9	O	
11	ADR8	O	
12	ADR7	O	
13	ADR6	O	
14	ADR5	O	

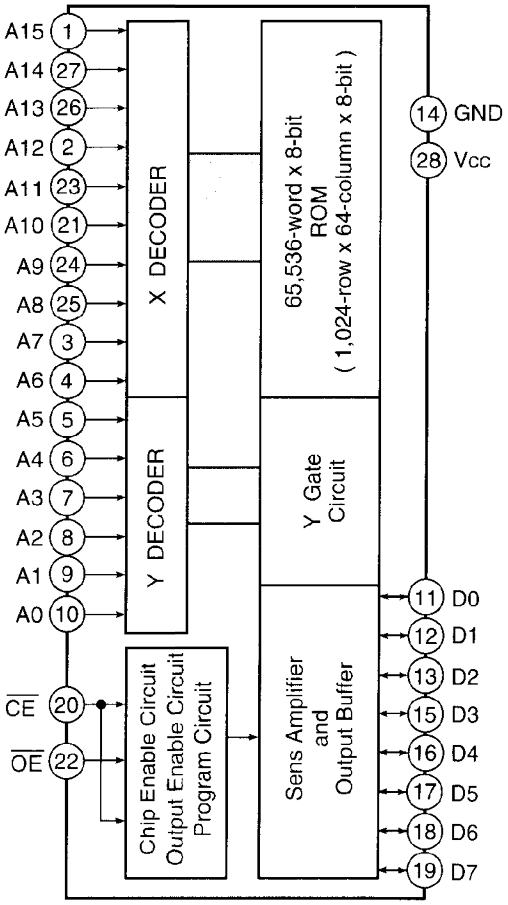
Pin	Name	I/O	Description
15	ADR4	O	Address output terminals for Microprocessor I/O Expander IC. (16-Bit)
16	ADR3	O	
17	ADR2	O	
18	ADR1	O	
19	ADR0	O	(LSB)
20	EXI	I	EX signal input terminal.
21	EXO	O	EX signal output terminal.
22	REN	O	Read enable signal output terminal.
23	WEN	O	Write enable signal output terminal.
24	P45	O	P45 signal output terminal.
25	P44	O	P44 signal output terminal.
26	P43	O	P43 signal output terminal.
27	P42	O	P42 signal output terminal.
28	P41	O	S1N signal output terminal.

Pin	Name	I/O	Description
29	P40	O	SON signal output terminal.
30	RST	I	Reset Pulse input terminal.
31	OSC1	I	Oscillator input terminal.
32	OSC2	O	Oscillator output terminal.
33	Vss	–	Ground terminal.
34	XI	I	XI signal input terminal.
35	XO	O	XO signal output terminal.
36	VDD	–	Power supply terminal.
37	IRQ3	I	IRQ3 signal input terminal.
38	IRQ2	I	Power off signal input terminal.
39	IRQ1	I	VD signal input terminal.
40	IRQ0	I	LMW signal input terminal.
41	P37	O	STB signal output terminal.
42	P36	O	LD signal output terminal.
43	P35	O	SEL3 signal output terminal.
44	P34	O	SEL2 signal output terminal.
45	P33	O	SEL1 signal output terminal.
46	P32	O	P32 signal output terminal.
47	P31	O	SYNCSW signal output terminal.
48	P30	O	SHUTTA signal output terminal.
49	SBT	O	SBT signal output terminal.
50	SBI	I	SBI signal input terminal.
51	SBO	O	YOUT3 signal output terminal.
52	TXD	O	TXD signal output terminal.
53	RXD	I	RXD signal input terminal.
54	TCIO2	I	BUSY signal input terminal.
55	TCIO1	I	Data Input Switch terminal.
56	TCIO0	I	WHD signal input terminal.
57	P17	O	VDRST signal output terminal.
58	P16	O	FLD/FRM signal output terminal.
59	P15	O	GAMMA SW signal output terminal.
60	P14	O	IRIS-R/A signal output terminal.
61	P13	O	P13 signal output terminal.
62	P12	O	P12 signal output terminal.
63	P11	O	P11 signal output terminal.
64	P10	O	AWCCNT signal output terminal.
65	DATA7	I/O	(MSB)
66	DATA6	I/O	
67	DATA5	I/O	
68	DATA4	I/O	Data input/output terminals between Microprocessor I/O Expander IC. (8-Bit)
69	DATA3	I/O	
70	DATA2	I/O	
71	DATA1	I/O	
72	DATA0	I/O	(LSB)

Pin	Name	I/O	Description
73	VDD	–	Power supply terminal.
74	AVDD	–	Power supply terminal for Analog circuit.
75	VREF(+)	I	Reference Voltage (+) input terminal.
76	DAC3	O	D/A Converter 3 output terminal.
77	DAC2	O	D/A Converter 2 output terminal.
78	DAC1	O	D/A Converter 1 output terminal.
79	DAC0	O	D/A Converter 0 output terminal.
80	ADC3	I	A/D Converter 3 input terminal.
81	ADC2	I	A/D Converter 2 input terminal.
82	ADC1	I	A/D Converter 1 input terminal.
83	ADC0	I	A/D Converter 0 input terminal.
84	VREF(–)	I	Reference Voltage (–) input terminal.

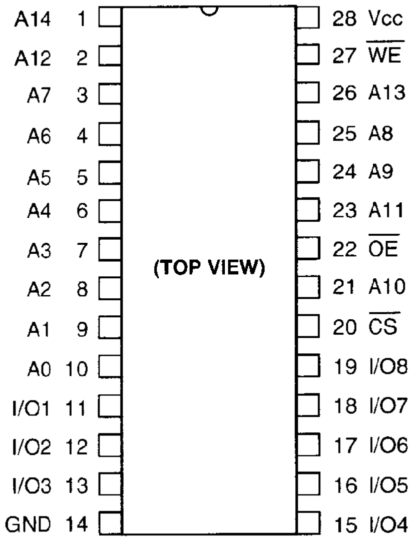
2.3. IC3 on the System Control Board is using the 524,288-Bit One Time Programmable ROM IC YWM27C512F62. Description of this IC is as follows:


A15 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
D0 11
D1 12
D2 13
GND 14
28 Vcc
27 A14
26 A13
25 A8
24 A9
23 A11
22 $\overline{OE}$
21 A10
20 $\overline{CE}$
19 D7
18 D6
17 D5
16 D4
15 D3
(TOP VIEW)

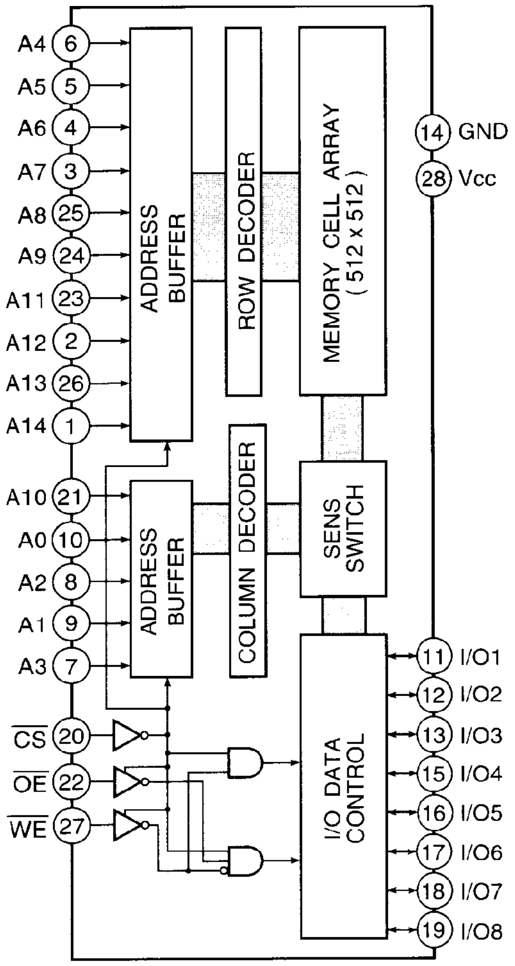

A15 1
A14 27
A13 26
A12 2
A11 23
A10 21
A9 24
A8 25
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
$\overline{CE}$ 20
$\overline{OE}$ 22
X DECODER
Y DECODER
65,536-word x 8-bit ROM (1,024-row x 64-column x 8-bit)
Y Gate Circuit
Chip Enable Circuit
Output Enable Circuit
Program Circuit
Sens Amplifier and Output Buffer
14 GND
28 Vcc
11 D0
12 D1
13 D2
15 D3
16 D4
17 D5
18 D6
19 D7

Pin	Name	I/O	Description
1	A15	I	(MSB) Address signal input terminals. (16-Bit)
2	A12	I	
3	A7	I	
4	A6	I	
5	A5	I	
6	A4	I	
7	A3	I	
8	A2	I	
9	A1	I	
10	A0	I	(LSB)
11	D0	I/O	(LSB) Data input/output terminals. (8-Bit)
12	D1	I/O	
13	D2	I/O	
14	GND	–	Ground terminal.
15	D3	I/O	Data input/output terminals. (8-Bit)
16	D4	I/O	
17	D5	I/O	
18	D6	I/O	
19	D7	I/O	(MSB)
20	$\overline{CE}$	I	Chip Enable signal input terminal.
21	A10	I	Address signal input terminals. (16-Bit)
22	$\overline{OE}$	I	Output Enable signal input terminal.
23	A11	I	Address signal input terminals. (16-Bit)
24	A9	I	
25	A8	I	
26	A13	I	
27	A14	I	
28	Vcc	–	Power supply terminal.

2.4. IC4, IC19 and IC20 on the System Control Board are using the 262,144-Bit Static RAM IC 43256AGU10L. Description of this IC is as follows:


(TOP VIEW)
A14 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
I/O1 11
I/O2 12
I/O3 13
GND 14
28 Vcc
27 WE
26 A13
25 A8
24 A9
23 A11
22 OE
21 A10
20 CS
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4

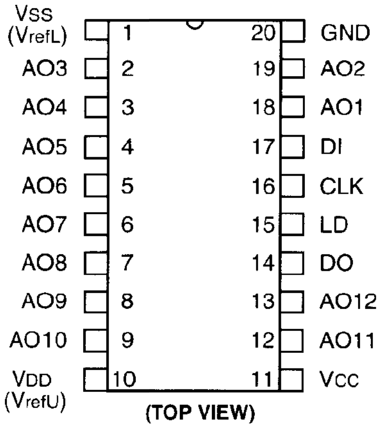
Pin	Name	I/O	Description
1	A14	I	(MSB)
2	A12	I	
3	A7	I	
4	A6	I	
5	A5	I	Address signal input terminals. (15-Bit)
6	A4	I	
7	A3	I	
8	A2	I	
9	A1	I	
10	A0	I	(LSB)
11	I/O1	I/O	(LSB)
12	I/O2	I/O	Data input/output terminals. (8-Bit)
13	I/O3	I/O	
14	GND	–	Ground terminal.
15	I/O4	I/O	
16	I/O5	I/O	
17	I/O6	I/O	Data input/output terminals. (8-Bit)
18	I/O7	I/O	
19	I/O8	I/O	(MSB)
20	$\overline{CS}$	I	Chip Select signal input terminal.
21	A10	I	Address signal input terminals. (15-Bit)
22	$\overline{OE}$	I	Output enable signal input terminal.
23	A11	I	
24	A9	I	Address signal input terminals. (15-Bit)
25	A8	I	
26	A13	I	
27	$\overline{WE}$	I	Write Enable signal input terminal.
28	Vcc	–	Power supply terminal.


A4 6
A5 5
A6 4
A7 3
A8 25
A9 24
A11 23
A12 2
A13 26
A14 1
A10 21
A0 10
A2 8
A1 9
A3 7
CS 20
OE 22
WE 27
ADDRESS BUFFER
ROW DECODER
MEMORY CELL ARRAY (512 x 512)
ADDRESS BUFFER
COLUMN DECODER
SENS SWITCH
I/O DATA CONTROL
14 GND
28 Vcc
11 I/O1
12 I/O2
13 I/O3
15 I/O4
16 I/O5
17 I/O6
18 I/O7
19 I/O8

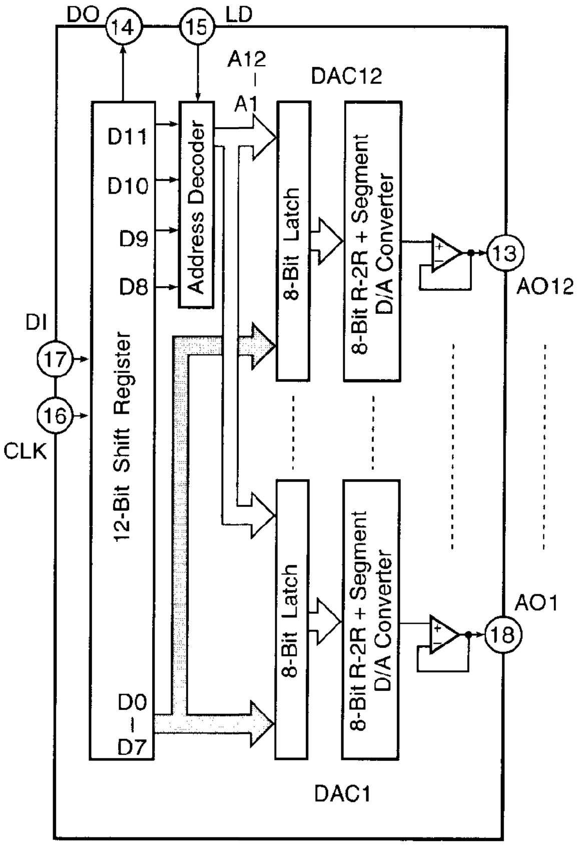
$\overline{CS}$	$\overline{OE}$	$\overline{WE}$	MODE	FUNCTION
H	*	*	No Selection	High Impedance
L	H	H	Output disable	High Impedance
L	L	H	Read	DOUT
L	*	L	Write	DIN

* : Don't care

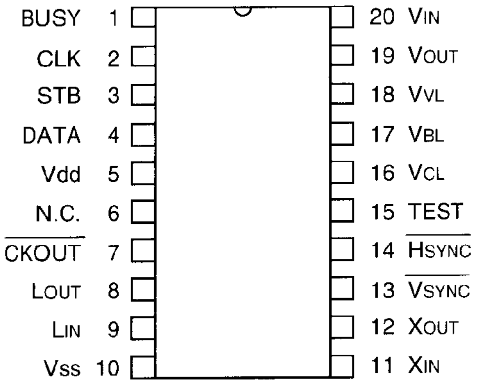
2.5. IC5 on the System Control Board is using the 8-Bit 12-ch D/A Converter IC YWM62352GP.
Description of this IC is as follows:


Vss (VrefL) 1
AO3 2
AO4 3
AO5 4
AO6 5
AO7 6
AO8 7
AO9 8
AO10 9
VDD (VrefU) 10
20 GND
19 AO2
18 AO1
17 DI
16 CLK
15 LD
14 DO
13 AO12
12 AO11
11 Vcc
(TOP VIEW)

Pin	Name	I/O	Description
1	Vss (VrefL)	–	Lower reference voltage supply terminal for D/A Converter circuit.
2	AO3	O	Analog Data 3 output terminal.
3	AO4	O	Analog Data 4 output terminal.
4	AO5	O	Analog Data 5 output terminal.
5	AO6	O	Analog Data 6 output terminal.
6	AO7	O	Analog Data 7 output terminal.
7	AO8	O	Analog Data 8 output terminal.
8	AO9	O	Analog Data 9 output terminal.
9	AO10	O	Analog Data 10 output terminal.
10	VDD (VrefU)	–	Upper reference voltage supply terminal for D/A Converter circuit.
11	Vcc	–	Power supply terminal terminal.
12	AO11	O	Analog Data 11 output terminal.
13	AO12	O	Analog Data 12 output terminal.
14	DO	O	MSB Data output terminal from 12-Bit Shift Register.
15	LD	I	Load signal input terminal. Data of 12-Bit Shift Register should be loaded to Decoder and D/A Output Registers when LD = H.
16	CLK	I	Shift Clock input terminal. Serial Data from DI terminal should be input to Decoder and 12-Bit Shift Register at raising edge of this signal.
17	DI	I	12-Bit Serial Data input terminal.
18	AO1	O	Analog Data 1 output terminal.
19	AO2	O	Analog Data 2 output terminal.
20	GND	–	Ground terminal.


DO
14
15
LD
A12
A1
DAC12
D11
D10
D9
D8
Address Decoder
8-Bit Latch
8-Bit R-2R + Segment D/A Converter
13
AO12
DI
17
16
CLK
12-Bit Shift Register
8-Bit Latch
8-Bit R-2R + Segment D/A Converter
AO1
18
D0
D7
DAC1

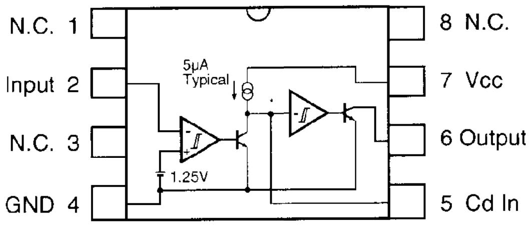
2.6. IC7 on the System Control Board is using the 12-Row x 24-Digit on Screen Display IC YWUPD6450601.
Description of this IC is as follows:


BUSY 1
CLK 2
STB 3
DATA 4
Vdd 5
N.C. 6
CKOUT 7
LOUT 8
LIN 9
Vss 10
20 VIN
19 VOUT
18 VVL
17 VBL
16 VCL
15 TEST
14 HSYNC
13 VSYNC
12 XOUT
11 XIN

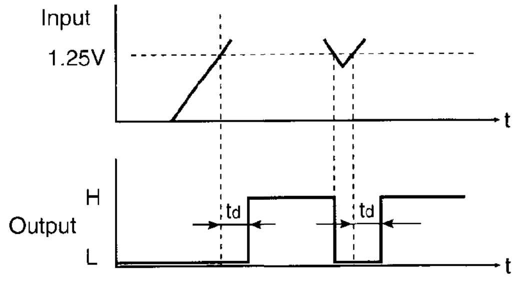
(TOP VIEW)

Pin	Name	I/O	Description
1	BUSY	O	Busy signal output terminal.
2	CLK	I	Serial Clock input terminal.
3	STB	I	Strobe signal input terminal.
4	DATA	I	Serial Data input terminal.
5	Vdd	–	Power supply terminal.
6	N.C.	–	Non connection.
7	$\overline{\text{CKOUT}}$	O	Clock Pulse output terminal for Oscillation frequency check.
8	LOUT	O	LC Oscillator output terminal.
9	LIN	I	LC Oscillator input terminal.
10	Vss	–	Ground terminal.
11	XIN	I	Crystal Oscillator input terminal.
12	XOUT	O	Crystal Oscillator output terminal.
13	$\overline{\text{VSYNC}}$	I	Vertical Sync signal input terminal.
14	$\overline{\text{HSYNC}}$	I	Horizontal Sync signal input terminal.
15	TEST	–	Test terminal.
16	VCL	I	VCL signal input terminal.
17	VBL	I	VBL signal input terminal.
18	VVL	I	VVL signal input terminal.
19	VOUT	O	Video signal output terminal.
20	VIN	I	Video signal input terminal.

2.7. IC9 and IC7 on the System Control Board are using the Voltage Detector IC YWM51957BFP.
Description of this IC is as follows:

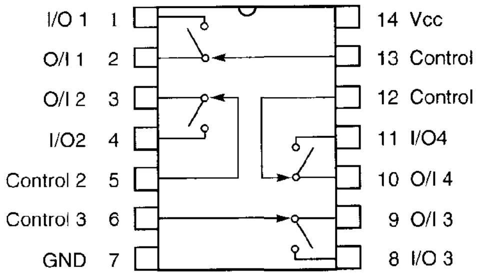

N.C. 1
Input 2
N.C. 3
GND 4
8 N.C.
7 Vcc
6 Output
5 Cd In
5μA Typical
1.25V

(TOP VIEW)



td ≈ 0.34 x Cd (pF) μsec.

2.8. IC16 on the System Control Board is using the Quad Analog Switch/Multiplexer IC UPD74HC4066G.
Description of this IC is as follows:

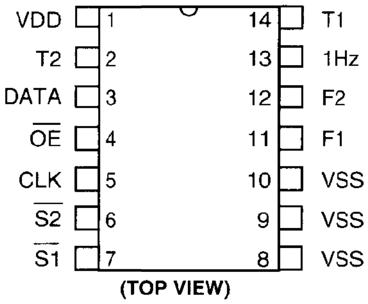

I/O 1 1
O/I 1 2
O/I 2 3
I/O2 4
Control 2 5
Control 3 6
GND 7
14 Vcc
13 Control 1
12 Control 4
11 I/O4
10 O/I 4
9 O/I 3
8 I/O 3

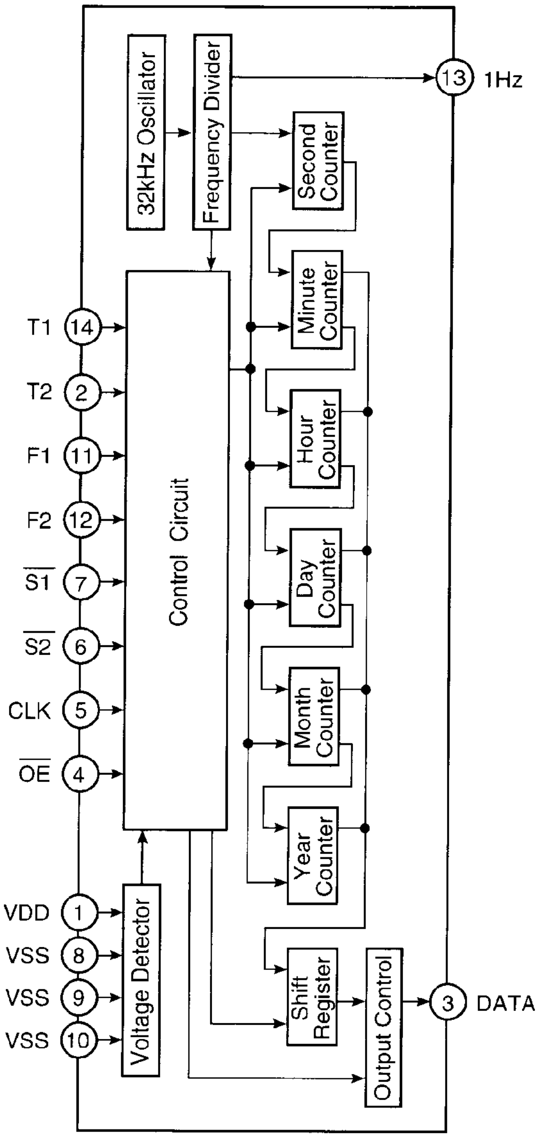
(TOP VIEW)

Truth Table

Input	Switch
Control	I/O – O/I
L	OFF
H	ON

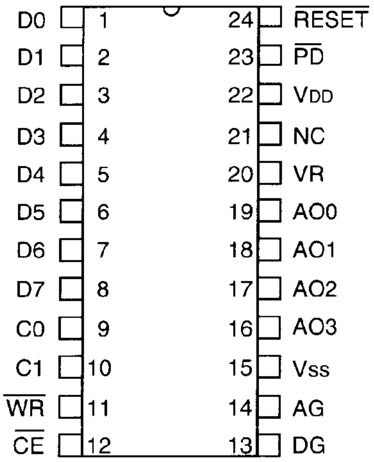
2.9. IC8 on the System Control Board is using the Real Time Clock IC YWRTC450315B.
Description of this IC is as follows:


VDD 1
T2 2
DATA 3
$\overline{OE}$ 4
CLK 5
$\overline{S2}$ 6
$\overline{S1}$ 7
14 T1
13 1Hz
12 F2
11 F1
10 VSS
9 VSS
8 VSS
(TOP VIEW)


32kHz Oscillator
Frequency Divider
Second Counter
Minute Counter
Hour Counter
Day Counter
Month Counter
Year Counter
Shift Register
Output Control
Control Circuit
Voltage Detector
13 1Hz
3 DATA
T1 14
T2 2
F1 11
F2 12
$\overline{S1}$ 7
$\overline{S2}$ 6
CLK 5
$\overline{OE}$ 4
VDD 1
VSS 8
VSS 9
VSS 10

Pin	Name	I/O	Description
1	VDD	–	Power supply terminal. Normally 1.5V.
2	T2	I	Test terminal 2. Normally connect at VSS.
3	DATA	O	Data outpuput terminal. Data should be output when $\overline{OE}$ terminal is at "L".
4	OE	I	Output enable signal input terminal.
5	CLK	I	Clock Pulse input terminal.
6	$\overline{S2}$	I	$\overline{S2}$ signal input terminal. Active at "L".
7	$\overline{S1}$	I	$\overline{S1}$ signal input terminal. Active at "L".
8	VSS	–	Ground terminal.
9	VSS	–	Ground terminal.
10	VSS	–	Ground terminal.
11	F1	I	F1 signal input terminal.
12	F2	I	F2 signal input terminal.
13	1Hz	O	1Hz Pulse output terminal. 50% duty cycle.
14	T1	I	Test terminal 1. Normally connect at VSS.

2.10. IC23 and IC24 on the System Control Board are using the D/A Converter IC YWMB86023PFG. Description of this IC is as follows:

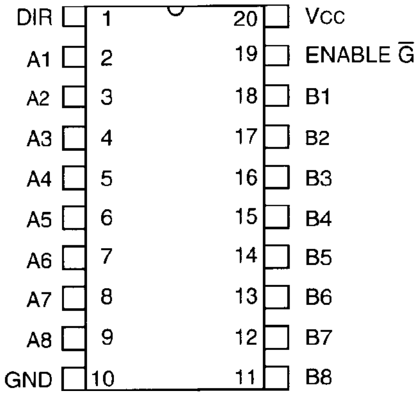

D0
D1
D2
D3
D4
D5
D6
D7
C0
C1
$\overline{WR}$
$\overline{CE}$
1
2
3
4
5
6
7
8
9
10
11
12
24
23
22
21
20
19
18
17
16
15
14
13
$\overline{RESET}$
$\overline{PD}$
VDD
NC
VR
AO0
AO1
AO2
AO3
Vss
AG
DG

(TOP VIEW)

Pin	Name	I/O	Description
1	D0	I	Data input terminals. (8-Bit)
2	D1	I	
3	D2	I	
4	D3	I	
5	D4	I	
6	D5	I	
7	D6	I	
8	D7	I	
9	C0	I	Channel selection signal input terminals.
10	C1	I	
11	$\overline{WR}$	I	Write Clock Pulse input teminal.
12	$\overline{CE}$	I	Chip Enable signal terminal.
13	DG	–	Digital ground terminal.
14	AG	–	Analog ground terminal.
15	Vss	–	Negative power supply terminal.
16	AO3	O	Analog signal output terminals.
17	AO2	O	
18	AO1	O	
19	AO0	O	
20	VR	I	Voltage Reference input terminal.
21	N.C.	–	Non Connection.
22	VDD	–	Positive power supply terminal.
23	PD	I	Power down control terminal.
24	$\overline{RESET}$	I	Reset pulse terminal.

2.11. IC21 and IC22 on the System Control Board are using the Octal 3-State Bus Transceivers IC UPD74HC245GS.

Description of this IC is as follows:


DIR
A1
A2
A3
A4
A5
A6
A7
A8
GND
1
2
3
4
5
6
7
8
9
10
20
19
18
17
16
15
14
13
12
11
Vcc
ENABLE $\overline{G}$
B1
B2
B3
B4
B5
B6
B7
B8

(TOP VIEW)

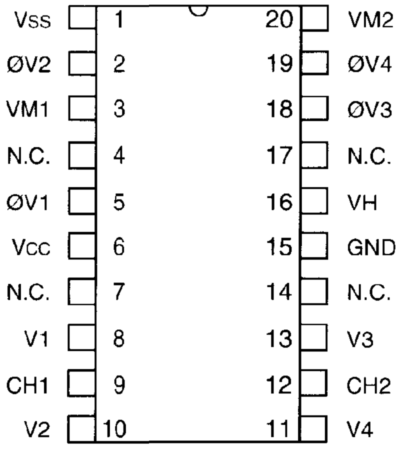
Truth Table

INPUTS		Function
DIR	$\overline{G}$	
H	L	A ⟶ B
L	L	B ⟶ A
*	H	A OFF B

* : Don't care.

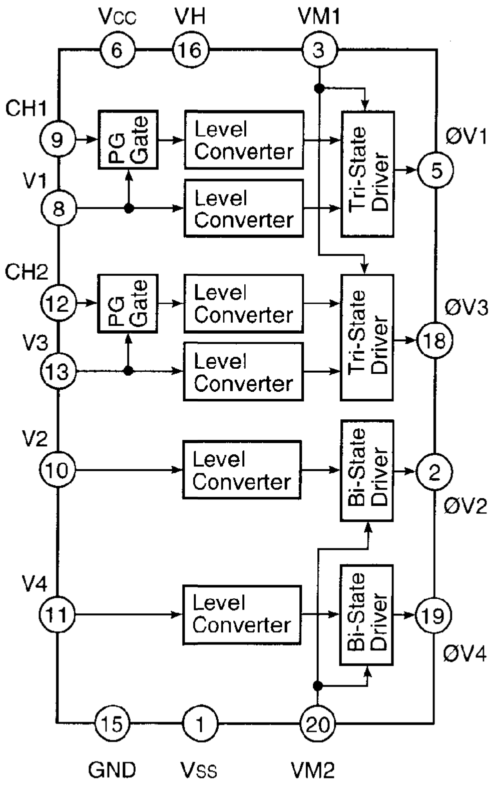
3. Sensor Board

3.1. IC2 and IC3 on the Sensor Board are using the CCD V-Driver IC YWUPD16502GS. Description of this IC is as follows:

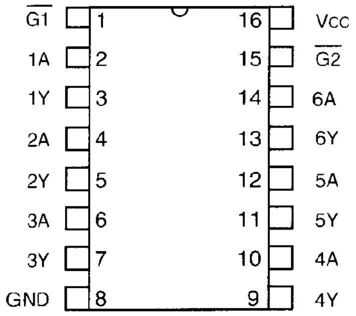

Vss 1
ØV2 2
VM1 3
N.C. 4
ØV1 5
Vcc 6
N.C. 7
V1 8
CH1 9
V2 10
20 VM2
19 ØV4
18 ØV3
17 N.C.
16 VH
15 GND
14 N.C.
13 V3
12 CH2
11 V4

(TOP VIEW)

Pin	Name	I/O	Description
1	VSS	–	Negative Voltage supply terminal.
2	ØV2	O	Bi-State output terminal 1.
3	VM1	–	Middle Voltage supply terminal for Tri-State Drivers.
4	N.C.	–	Non Connection.
5	ØV1	O	Tri-State input terminal 1.
6	Vcc	–	Power supply for input circuit section.
7	N.C.	–	Non Connection.
8	V1	I	Tri-State input terminal 1.
9	CH1	I	Photodiode Gate input terminal 1.
10	V2	I	Bi-State input terminal 1.
11	V4	I	Bi-State input terminal 2.
12	CH2	I	Photodiode Gate input terminal 2.
13	V3	I	Tri-State input terminal 2.
14	N.C.	–	Non Connection.
15	GND	–	Ground terminal.
16	VH	–	High Voltage supply terminal for Tri-State Drivers.
17	N.C.	–	Non Connection.
18	ØV3	O	Tri-State input terminal 2.
19	ØV4	O	Bi-State output terminal 2.
20	VM2	–	Middle Voltage supply terminal for Bi-State Drivers.


Vcc
VH
VM1
6
16
3
CH1
9
PG Gate
Level Converter
Tri-State Driver
ØV1
5
V1
8
Level Converter
CH2
12
PG Gate
Level Converter
Tri-State Driver
ØV3
18
V3
13
Level Converter
V2
10
Level Converter
Bi-State Driver
2
ØV2
V4
11
Level Converter
Bi-State Driver
19
ØV4
15
1
20
GND
Vss
VM2

3.2. IC1 on the Sensor Board is using the Hex 3-State Bus Buffers IC YWTC74HC367F.
Description of this IC is as follows:


$\overline{G1}$ 1
1A 2
1Y 3
2A 4
2Y 5
3A 6
3Y 7
GND 8
16 Vcc
15 $\overline{G2}$
14 6A
13 6Y
12 5A
11 5Y
10 4A
9 4Y

(TOP VIEW)

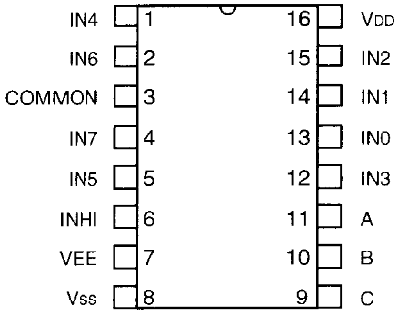
Truth Table

INPUTS			OUTPUT
$\overline{G1}$	$\overline{G2}$	A	Y
H	H	*	Z
L	L	L	L
L	L	H	H

*: Don't care.
Z: High Impedance

4. Mother Board

4.1. IC15, IC19, IC20 and IC25 on the Mother Board are using the Dual Binary Up Counters IC YWUPD4051 BG.
Description of this IC is as follows:


IN4 1
IN6 2
COMMON 3
IN7 4
IN5 5
INHI 6
VEE 7
Vss 8
16 VDD
15 IN2
14 IN1
13 IN0
12 IN3
11 A
10 B
9 C

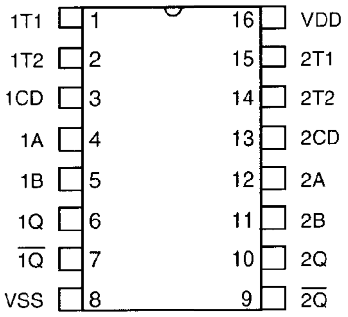
(TOP VIEW)

Truth Table

INHIBIT	C	B	A	COMMON
L	L	L	L	IN0
L	L	L	H	IN1
L	L	H	L	IN2
L	L	H	H	IN3
L	H	L	L	IN4
L	H	L	H	IN5
L	H	H	L	IN6
L	H	H	H	IN7
H	*	*	*	NONE

*: Don't care.

4.2. IC3,IC6,IC13 and IC24 on the Mother Board are using the Dual Precision Retriggerable Monostable Multivibrator IC YWUPD4538BG.
Description of this IC is as follows:


1T1 1
1T2 2
1CD 3
1A 4
1B 5
1Q 6
$\overline{1Q}$ 7
VSS 8
16 VDD
15 2T1
14 2T2
13 2CD
12 2A
11 2B
10 2Q
9 $\overline{2Q}$

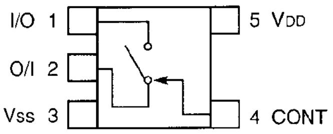
(TOP VIEW)

Truth Table

INPUTS			OUTPUTS		NOTE
A	B	RESET	Q	$\overline{Q}$	
↑	H	H	⎍	⊔	Output Pulse
↑	L	H	L	H	Inhibit
H	↓	H	L	H	Inhibit
L	↓	H	⎍	⊔	Output Pulse
*	*	L	L	H	Inhibit

*: Don't care.

4.3. IC8 and IC12 on the Mother Board and IC44 on the Sync/Encoder Board are using the Single Analog Switch/Multiplexer IC YWSC4S66F.
Description of this IC is as follows:

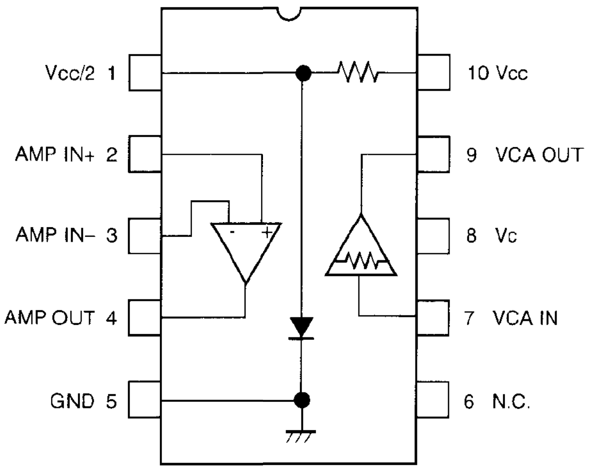

I/O 1
O/I 2
Vss 3
5 VDD
4 CONT

(TOP VIEW)

Truth Table

Input	Switch
Control	I/O – O/I
L	OFF
H	ON

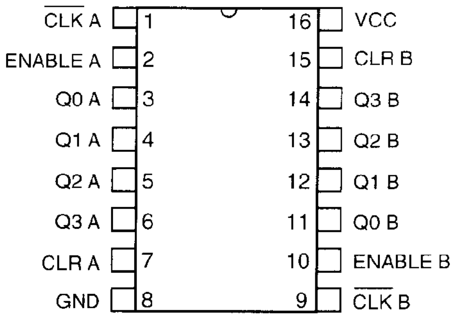
4.4. IC9 on the Mother Board is using the VCA for fade in fade out IC YWM5282FP.
Description of this IC is as follows:


Vcc/2 1
AMP IN+ 2
AMP IN- 3
AMP OUT 4
GND 5
10 Vcc
9 VCA OUT
8 Vc
7 VCA IN
6 N.C.
-
+

(TOP VIEW)

Pin	Name	I/O	Description
1	Vcc/2	O	Vcc/2 voltage output terminal.
2	AMP IN+	I	Mic Amp. non-inverting input terminal.
3	AMP IN-	I	Mic Amp. inverting input terminal.
4	AMP OUT	O	Mic Amp. output terminal.
5	GND	–	Ground terminal.
6	N.C.	–	Non Connection.
7	VCA IN	I	VCA signal input terminal.
8	VC	I	VCA control terminal.
9	VCA OUT	O	VCA signal output terminal.
10	Vcc	–	Power supply terminal.

4.5. IC10 on the Mother Board is using the Dual Binary Up Counters IC YWUPD4520BG.
Description of this IC is as follows:


$\overline{\text{CLK}}$ A
ENABLE A
Q0 A
Q1 A
Q2 A
Q3 A
CLR A
GND
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
VCC
CLR B
Q3 B
Q2 B
Q1 B
Q0 B
ENABLE B
$\overline{\text{CLK}}$ B

(TOP VIEW)

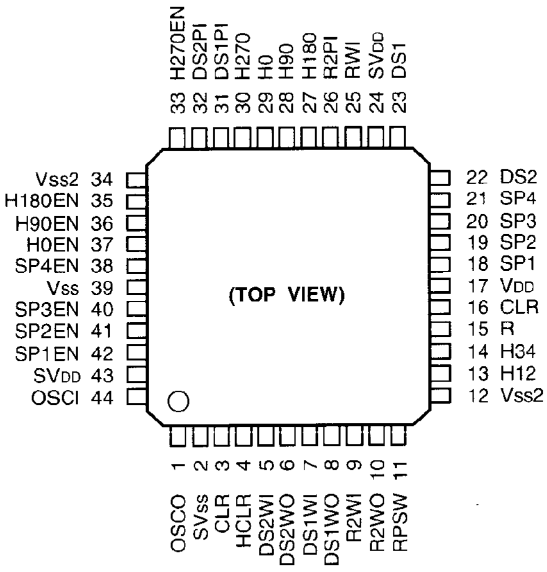
Truth Table

INPUTS			Function
$\overline{\text{CLK}}$	ENABLE	CLR	
↑	H	L	Count Up
L	↓	L	Count Up
↓	*	L	No Count
*	↑	L	No Count
↑	L	L	No Count
H	↓	L	No Count
*	*	H	Q0 thru Q3 = L

* : Don't care.

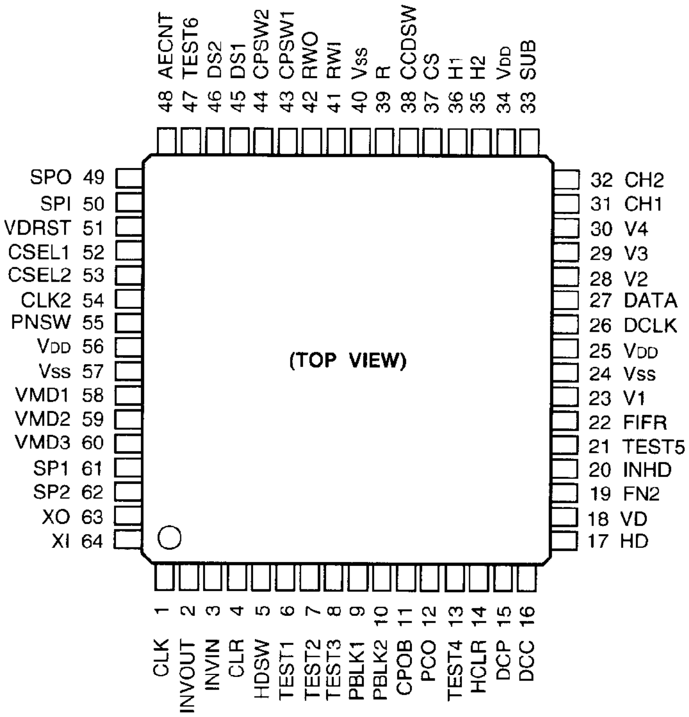
5. Drive Board

5.1. IC2 on the Drive Board is using the CCD Drive Pulse Generator IC MN53003XCU.
Description of this IC is as follows:


33 H270EN
32 DS2PI
31 DS1PI
30 H270
29 H0
28 H90
27 H180
26 R2PI
25 RWI
24 SVDD
23 DS1
Vss2 34
H180EN 35
H90EN 36
H0EN 37
SP4EN 38
Vss 39
SP3EN 40
SP2EN 41
SP1EN 42
SVDD 43
OSCI 44
(TOP VIEW)
22 DS2
21 SP4
20 SP3
19 SP2
18 SP1
17 VDD
16 CLR
15 R
14 H34
13 H12
12 Vss2
1 OSCO
2 SVss
3 CLR
4 HCLR
5 DS2WI
6 DS2WO
7 DS1WI
8 DS1WO
9 R2WI
10 R2WO
11 RPSW

Pin	Name	I/O	Description
1	OSCO	O	Oscillator signal output terminal.
2	Vcc	–	Power supply terminal.
3	CLK	O	Clock Pulse output terminal.
4	HCLR	I	HCLR signal output terminal.
5	DS2WI	I	DS2W signal input terminal.
6	DS2WO	O	DS2W signal output terminal.
7	DS1WI	I	DS1W signal input terminal.
8	DS1WO	O	DS1W signal output terminal.
9	R2WI	I	R2W signal input terminal.
10	R2WO	O	R2W signal output terminal.
11	RPSW	I	RPSW signal input terminal.
12	Vss	–	Ground terminal.
13	H12	O	H12 signal output terminal.
14	H34	O	H34 signal output terminal
15	R	O	R signal output terminal.
16	CLR	I	Clear signal input terminal.
17	VDD	–	Power supply terminal.
18	SP1	O	SP signal output terminals.
19	SP2	O	
20	SP3	O	
21	SP4	O	
22	DS2	O	DS signal output terminals.
23	DS1	O	
24	SVDD	–	Power supply terminal.
25	RWI	I	RW signal input terminal.
26	R2PI	I	R2P signal input terminal.
27	H180	O	Horizontal Phase (180) output terminal.
28	H90	O	Horizontal Phase (90) output terminal.
29	H0	O	Horizontal Phase (0) output terminal.
30	H270	O	Horizontal Phase (270) output terminal.
31	DS1PI	I	DS1P signal input terminal.
32	DS2PI	I	DS2P signal input terminal.
33	H270EN	I	H270EN signal input terminal.
34	Vss2	–	Ground terminal.
35	H180EN	I	H180EN signal input terminal.
36	H90EN	I	H90EN signal input terminal.
37	H0EN	I	H0EN signal input terminal.
38	SP4EN	I	SP4EN signal input terminal.
39	Vss	–	Ground terminal.
40	SP3EN	I	SP3EN signal input terminal.
41	SP2EN	I	SP2EN signal input terminal.
42	SP1EN	I	SP1EN signal input terminal.
43	SVDD	–	Power supply terminal.
44	DSCI	I	DSC signal input terminal.

5.2. IC3 on the Drive Board is using the CCD Camera Timing Generation IC YWCXD2404R.
Description of this IC is as follows:


(TOP VIEW)
48 AECNT
47 TEST6
46 DS2
45 DS1
44 CPSW2
43 CPSW1
42 RWO
41 RWI
40 Vss
39 R
38 CCDSW
37 CS
36 H1
35 H2
34 VDD
33 SUB
SPO 49
SPI 50
VDRST 51
CSEL1 52
CSEL2 53
CLK2 54
PNSW 55
VDD 56
Vss 57
VMD1 58
VMD2 59
VMD3 60
SP1 61
SP2 62
XO 63
XI 64
32 CH2
31 CH1
30 V4
29 V3
28 V2
27 DATA
26 DCLK
25 VDD
24 Vss
23 V1
22 FIFR
21 TEST5
20 INHD
19 FN2
18 VD
17 HD
1 CLK
2 INVOUT
3 INVIN
4 CLR
5 HDSW
6 TEST1
7 TEST2
8 TEST3
9 PBLK1
10 PBLK2
11 CPOB
12 PCO
13 TEST4
14 HCLR
15 DCP
16 DCC

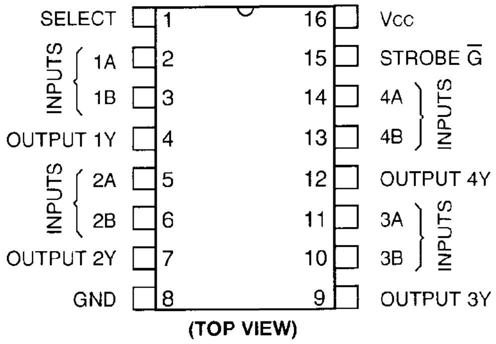
Pin	Name	I/O	Description
1	CLK	O	Clock (fck) Pulse output terminal.
2	INVOUT	O	Inverter output terminal.
3	INVIN	I	Inverter input terminal.
4	CLR	I	All clear signal input terminal. L: Clear; H: Active
5	HDSW	I	HD Switching signal input terminal. H: Internal; L: External
6	TEST1	I	Test terminal (normally open).
7	TEST2	I	Test terminal (normally open).
8	TEST3	I	Test terminal (normally open).
9	PBLK1	O	Pre Blanking Pulse output terminal. Start: Rising edge of HD signal.
10	PBLK2	O	Pre Blanking Pulse output terminal. Start: Rising edge of HCLR signal.
11	CPOB	O	OB Clamp Pulse output terminal.
12	PCO	O	Phase Comparator output terminal.
13	TEST4	I	Test terminal (normally open).
14	HCLR	O	H Clear pulse output.
15	DCP	O	Digital Clamp Pulse output.
16	DCC	O	Digital Clamp Pulse output terminal.

Pin	Name	I/O	Description
17	HD	I	HD signal input terminal.
18	VD	I	VD signal input terminal.
19	FH2	O	FH/2 Pulse output terminal.
20	INHD	O	Internal HD output terminal.
21	TEST5	I	Test terminal (normally open).
22	FIFR	I	Field accumulation:H Frame accumulation:L terminal.
23	V1	O	V1 Transfer Pulse output terminal.
24	Vss	–	Ground terminal.
25	VDD	–	Power supply terminal.
26	DCLK	I	Serial Clock input terminal.
27	DATA	I	Serial Data input terminal.
28	V2	O	V2 Transfer Pulse output terminal.
29	V3	O	V3 Transfer Pulse output terminal.
30	V4	O	V4 Transfer Pulse output terminal.
31	CH1	O	Charge Pulse for V1 output terminal.
32	CH2	O	Charge Pulse for V3 output terminal.
33	SUB	O	SUB signal output terminal.

Pin	Name	I/O	Description
34	VDD	–	Power supply terminal.
35	H2	O	H2 Transfer Pulse output terminal.
36	H1	O	H1 Transfer Pulse output terminal.
37	CS	I	Chip Select signal input terminal for serial Data.
38	CCDSW	I	CCD Element Select signal input terminal. (L: 510H; H: 768H)
39	R	O	R Transfer Pulse output terminal.
40	Vss	–	Ground terminal.
41	RWI	I	R Transfer Pulse Width adjust input terminal.
42	RWO	O	R Transfer Pulse Width adjust output terminal.
43	CPSW1	I	CPOB Phase Switching signal input terminals.
44	CPSW2	I	
45	DS1	O	Pulse output terminals for CDS.
46	DS2	O	
47	TEST6	I	Test terminal (nomally open).
48	AECNT	I	Electronic Shutter setting signal input terminal.
49	SPO	O	SP1, 2 Pulse phase adjust output terminal.
50	SPI	I	SP1, 2 Pulse phase adjust input terminal.
51	VDRST	I	VD Reset Pulse input terminal. (L: Reset; H: Normal)
52	CSEL1	I	CLK2 Pulse phase switching signal input terminals.
53	CSEL2	I	
54	CLK2	O	Clock Pulse output terminal for Digital circuit.
55	PNSW	I	TV System switching signal input terminal. (L: NTSC; H: PAL)
56	VDD	–	Power supply terminal.
57	Vss	–	Ground terminal.
58	VMD1	I	Electronic Shutter switching signal input terminals.
59	VMD2	I	
60	VMD3	I	
61	SP1	O	Sampling Pulse output terminals.
62	SP2	O	
63	XO	O	2fck OSC output terminal.
64	XI	I	2fck OSC input terminal.

5.3. IC11 on the Drive Board is using the Quad 2 to 1 Data Selectors IC YWMC74AC157M.

Description of this IC is as follows:


SELECT
1
16
Vcc
INPUTS
1A
2
15
STROBE $\overline{G}$
1B
3
14
4A
INPUTS
OUTPUT 1Y
4
13
4B
INPUTS
2A
5
12
OUTPUT 4Y
2B
6
11
3A
INPUTS
OUTPUT 2Y
7
10
3B
GND
8
9
OUTPUT 3Y
(TOP VIEW)

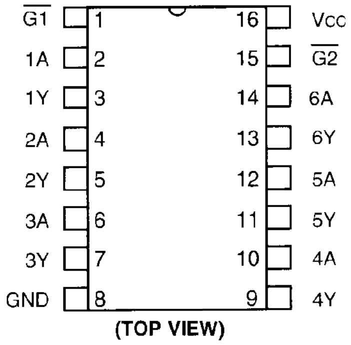
Truth Table

INPUTS		OUTPUT
SELECT	STROBE $\overline{G}$	Y
*	H	L
L	L	A
H	L	B

* : Don't care.

5.4. IC13 on the Drive Board is using the Hex 3-State Bus Buffers IC YWMC74HC367F.

Description of this IC is as follows:

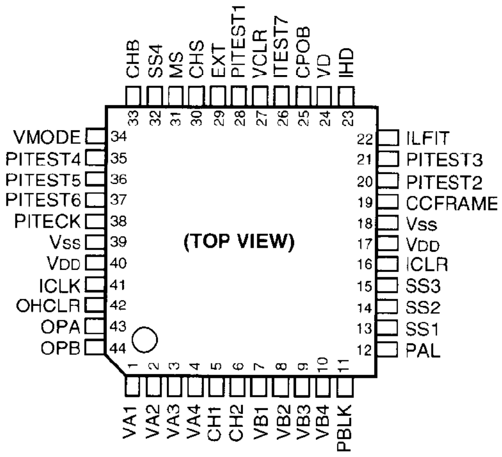

$\overline{G1}$
1
16
Vcc
1A
2
15
$\overline{G2}$
1Y
3
14
6A
2A
4
13
6Y
2Y
5
12
5A
3A
6
11
5Y
3Y
7
10
4A
GND
8
9
4Y
(TOP VIEW)

Truth Table

INPUTS			OUTPUT
$\overline{G1}$	$\overline{G2}$	A	Y
H	H	*	Z
L	L	L	L
L	L	H	H

*: Don't care.
Z: High Impedance

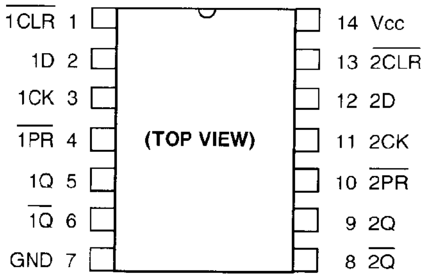
5.5. IC1 on the Drive Board is using the CCD Driver IC MN53020XXF.
Description of this IC is as follows:


CHB
SS4
MS
CHS
EXT
PITEST1
VCLR
ITEST7
CPOB
VD
IHD
33
32
31
30
29
28
27
26
25
24
23
VMODE 34
PITEST4 35
PITEST5 36
PITEST6 37
PITECK 38
Vss 39
VDD 40
ICLK 41
OHCLR 42
OPA 43
OPB 44
(TOP VIEW)
22 ILFIT
21 PITEST3
20 PITEST2
19 CCFRAME
18 Vss
17 VDD
16 ICLR
15 SS3
14 SS2
13 SS1
12 PAL
1
2
3
4
5
6
7
8
9
10
11
VA1
VA2
VA3
VA4
CH1
CH2
VB1
VB2
VB3
VB4
PBLK

Pin	Name	I/O	Description
31	MS	I	MS signal input terminal.
32	SS4	I	SS signal input terminal.
33	CHB	O	CHB signal output terminal.
34	VMODE	I	VMODE signal input terminal.
35	PITEST4	I	PITEST signal input terminals.
36	PITEST5	I	
37	PITEST6	I	
38	PITECK	I	PITECK signal input terminal.
39	Vss	–	Ground Terminal.
40	VDD	–	Power supply terminal.
41	ICLK	I	ICLR signal input terminal.
42	OHCLR	O	OHCLR signal output terminal.
43	OPA	O	OPA signal output terminal.
44	OPB	O	OPB signal output terminal.

Pin	Name	I/O	Description
1	VA1	O	VA1 signal output terminals.
2	VA2	O	
3	VA3	O	
4	VA4	O	
5	CH1	O	CH signal output terminals.
6	CH1	O	
7	VB1	O	VB signal output terminals.
8	VB2	O	
9	VB3	O	
10	VB4	O	
11	PBLK	O	Pre Blanking signal output terminal.
12	PAL	I	PAL signal input terminal.
13	SS1	I	SS signal input terminals.
14	SS2	I	
15	SS3	I	
16	ICLR	I	ICLR signal input terminal.
17	VDD	–	Power supply terminal.
18	Vss	–	Ground terminal.
19	CCFRAME	I	CCFRAME signal input terminal.
20	PITEST2	I	PITEST signal input terminals.
21	PITEST3	I	
22	ILFIT	I	ILFIT signal input terminal.
23	IHD	I	IHD signal input terminal.
24	VD	I	VD signal input terminal.
25	CPOB	O	CPOB signal output terminal.
26	ITEST7	I	ITEST signal input terminal.
27	VCLR	O	VCLR signal output terminal.
28	PITEST1	I	PITEST signal input terminal.
29	EXT	I	EXT signal input terminal.
30	CHS	O	CHS signal output terminal.

5.6. IC8 on the Drive Board is using the Dual D-FFs with Preset and Clear IC YWMC74AC74M.
Description of this IC is as follows:

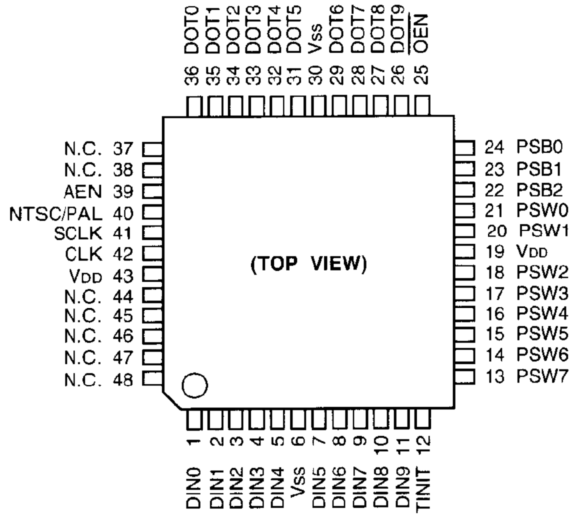

1CLR 1
1D 2
1CK 3
1PR 4
1Q 5
1Q 6
GND 7
(TOP VIEW)
14 Vcc
13 2CLR
12 2D
11 2CK
10 2PR
9 2Q
8 2Q

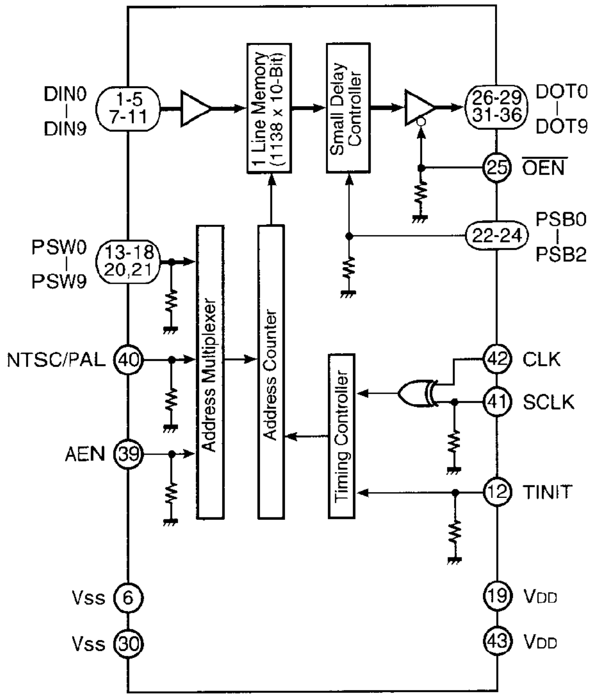
Truth Table

INPUTS				OUTPUTS		Function
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\overline{Q}$	
L	H	*	*	L	H	Clear
H	L	*	*	H	L	Preset
L	L	*	*	H	H	——
H	H	L	↑	L	H	——
H	H	H	↑	H	L	——
H	H	*	↓	Qn	$\overline{Qn}$	No Change

* : Don't care.

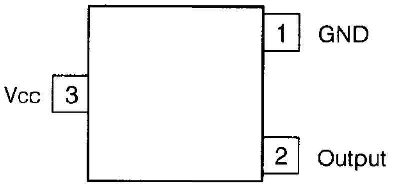
5.7. IC1 on the Drive Sub Board is using the Digital Delay Line Memory IC YWCXK1203R.
Description of this IC is as follows:


36 DOT0
35 DOT1
34 DOT2
33 DOT3
32 DOT4
31 DOT5
30 Vss
29 DOT6
28 DOT7
27 DOT8
26 DOT9
25 OEN
N.C. 37
N.C. 38
AEN 39
NTSC/PAL 40
SCLK 41
CLK 42
VDD 43
N.C. 44
N.C. 45
N.C. 46
N.C. 47
N.C. 48
(TOP VIEW)
24 PSB0
23 PSB1
22 PSB2
21 PSW0
20 PSW1
19 VDD
18 PSW2
17 PSW3
16 PSW4
15 PSW5
14 PSW6
13 PSW7
1 DIN0
2 DIN1
3 DIN2
4 DIN3
5 DIN4
6 Vss
7 DIN5
8 DIN6
9 DIN7
10 DIN8
11 DIN9
12 TINIT

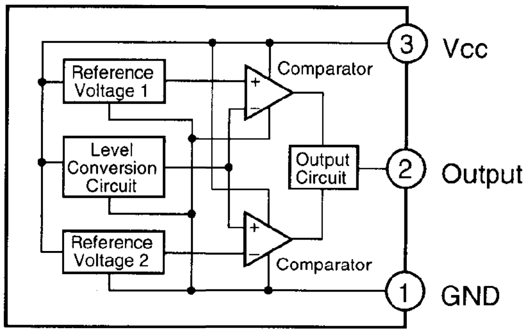

DIN0 | DIN9
1-5 7-11
1 Line Memory (1138 x 10-Bit)
Small Delay Controller
26-29 31-36
DOT0 | DOT9
25 OEN
22-24
PSB0 | PSB2
PSW0 | PSW9
13-18 20,21
NTSC/PAL 40
AEN 39
Address Multiplexer
Address Counter
Timing Controller
42 CLK
41 SCLK
12 TINIT
Vss 6
Vss 30
19 VDD
43 VDD

Pin	Name	I/O	Description
1	DIN0	I	Data input terminals. (10-Bit)
2	DIN1	I	
3	DIN2	I	
4	DIN3	I	
5	DIN4	I	
6	Vss	–	Ground terminal.
7	DIN5	I	Data input terminals. (10-Bit)
8	DIN6	I	
9	DIN7	I	
10	DIN8	I	
11	DIN9	I	
12	TINIT	I	Test terminal.
13	PSW7	I	Delay step setting terminals. (8-Bit)
14	PSW6	I	
15	PSW5	I	
16	PSW4	I	
17	PSW3	I	
18	PSW2	I	
19	VDD	–	Power supply terminal.
20	PSW1	I	Delay step setting terminals. (8-Bit)
21	PSW0	I	
22	PSB2	I	Delay step precise setting terminals. (3-Bit)
23	PSB1	I	
24	PSB0	I	
25	OEN	I	Output Enable signal input terminal.
26	DOT9	O	Data output terminals. (10-Bit)
27	DOT8	O	
28	DOT7	O	
29	DOT6	O	
30	Vss	–	Ground terminal.
31	DOT5	O	Data output terminals. (10-Bit)
32	DOT4	O	
33	DOT3	O	
34	DOT2	O	
35	DOT1	O	
36	DOT0	O	
37	N.C.	–	Non connection.
38	N.C.	–	Non connection.
39	AEN	I	Delay Step Selecting terminal.
40	NTSC/PAL	I	NTSC/PAL Selecting terminal.
41	SCLK	I	Clock Pulse Selecting terminal.
42	CLK	I	Clock Pulse input terminal.
43	VDD	–	Power supply terminal.
44	N.C.	–	Non connection.
45	N.C.	–	Non connection.
46	N.C.	–	Non connection.
47	N.C.	–	Non connection.
48	N.C.	–	Non connection.

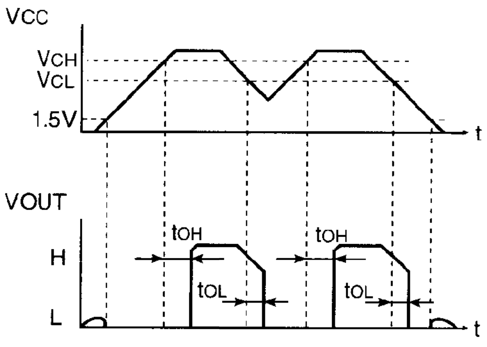
5.8. IC16 on the Drive Board is using the 3.5V Reset IC MN13821M.
Description of this IC is as follows:



1 GND
Vcc 3
2 Output

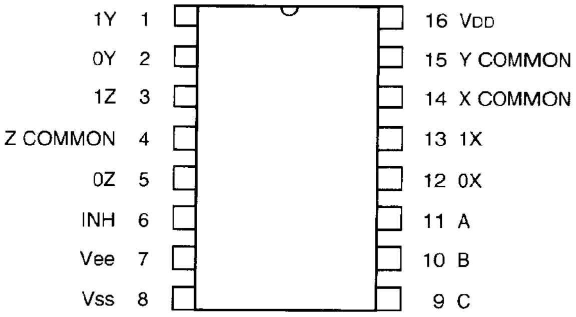


Reference Voltage 1
Comparator
Level Conversion Circuit
Output Circuit
Reference Voltage 2
Comparator
3 Vcc
2 Output
1 GND



6. Sync/Encoder Board

6.1. IC32, IC35 and IC38 on the Sync/Encoder Board and IC101, IC301 and IC501 on the Preprocess Board are using the triple 2-ch Analog Multiplexers/Demultiplexers IC UPD74HC4053B.
Description of this IC is as follows:



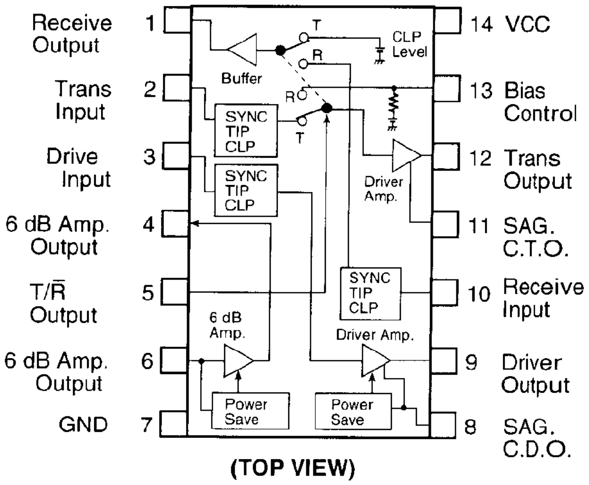
1Y 1
0Y 2
1Z 3
Z COMMON 4
0Z 5
INH 6
Vee 7
Vss 8
16 VDD
15 Y COMMON
14 X COMMON
13 1X
12 0X
11 A
10 B
9 C

Truth Table

INHIBIT	C	B	A	X COMMON	Y COMMON	Z COMMON
L	L	L	L	0X	0Y	0Z
L	L	L	H	1X	0Y	0Z
L	L	H	L	0X	1Y	0Z
L	L	H	H	1X	1Y	0Z
L	H	L	L	0X	0Y	1Z
L	H	L	H	1X	0Y	1Z
L	H	H	L	0X	1Y	1Z
L	H	H	H	1X	1Y	1Z
H	*	*	*	NONE	NONE	NONE

* : Don't care.

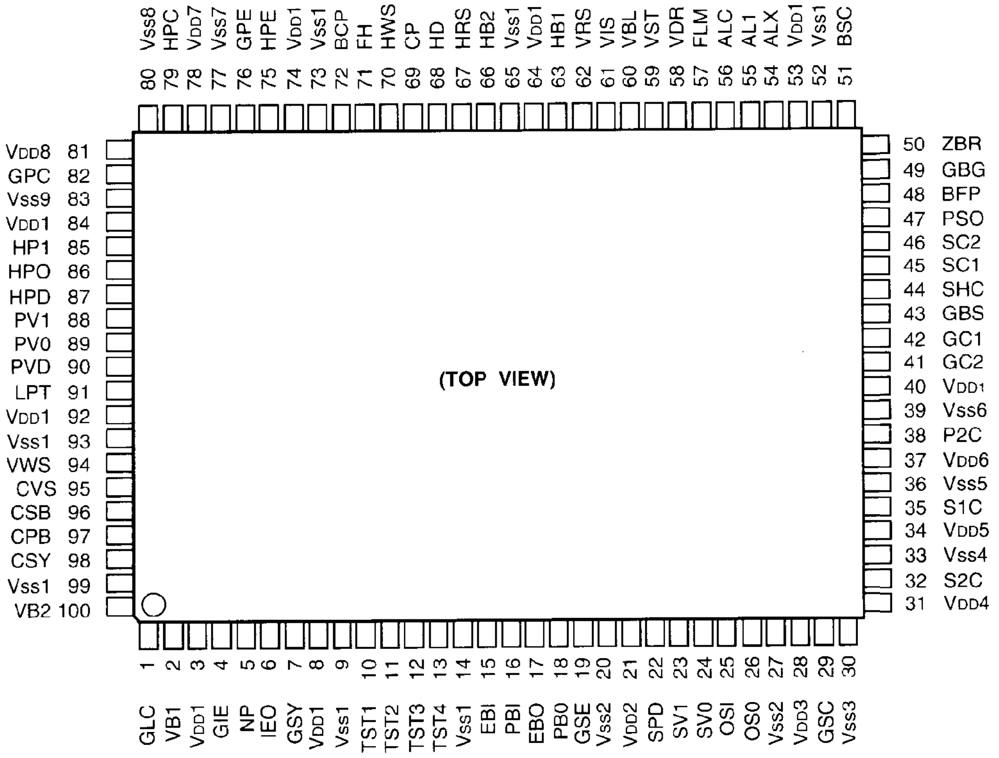
6.2. IC34 on the Sync/Encoder Board is using the Video Signal Interface IC YWCX20095A.
Description of this IC is as follows:



Receive Output 1
Trans Input 2
Drive Input 3
6 dB Amp. Output 4
T/R̄ Output 5
6 dB Amp. Output 6
GND 7
14 VCC
13 Bias Control
12 Trans Output
11 SAG. C.T.O.
10 Receive Input
9 Driver Output
8 SAG. C.D.O.
T
CLP Level
R
Buffer
R
SYNC TIP CLP
T
SYNC TIP CLP
Driver Amp.
SYNC TIP CLP
6 dB Amp.
Driver Amp.
Power Save
Power Save

(TOP VIEW)

6.3. IC4 on the Sync/Encoder Board is using the Sync Generator IC YWMB87075D.
Description of this IC is as follows:

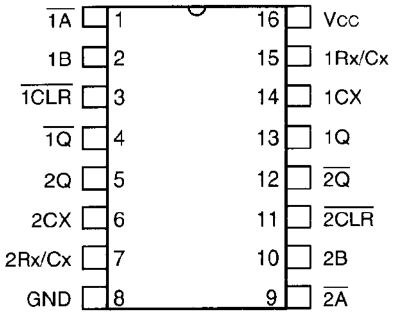

Vss8 80
HPC 79
VDD7 78
Vss7 77
GPE 76
HPE 75
VDD1 74
Vss1 73
BCP 72
FH 71
HWS 70
CP 69
HD 68
HRS 67
HB2 66
Vss1 65
VDD1 64
HB1 63
VRS 62
VIS 61
VBL 60
VST 59
VDR 58
FLM 57
ALC 56
AL1 55
ALX 54
VDD1 53
Vss1 52
BSC 51
VDD8 81
GPC 82
Vss9 83
VDD1 84
HP1 85
HPO 86
HPD 87
PV1 88
PV0 89
PVD 90
LPT 91
VDD1 92
Vss1 93
VWS 94
CVS 95
CSB 96
CPB 97
CSY 98
Vss1 99
VB2 100
(TOP VIEW)
50 ZBR
49 GBG
48 BFP
47 PSO
46 SC2
45 SC1
44 SHC
43 GBS
42 GC1
41 GC2
40 VDD1
39 Vss6
38 P2C
37 VDD6
36 Vss5
35 S1C
34 VDD5
33 Vss4
32 S2C
31 VDD4
1 GLC
2 VB1
3 VDD1
4 GIE
5 NP
6 IEO
7 GSY
8 VDD1
9 Vss1
10 TST1
11 TST2
12 TST3
13 TST4
14 Vss1
15 EBI
16 PBI
17 EBO
18 PBO
19 GSE
20 Vss2
21 VDD2
22 SPD
23 SV1
24 SV0
25 OSI
26 OSO
27 Vss2
28 VDD3
29 GSC
30 Vss3

Pin	Name	I/O	Description
1	GLC	I/O	External component conneting terminal for G/L mode detection monomulti circuit.
2	VB1	I	Pulse width adjusting terminals for composite blanking pulse and V blanking pulse. (NTSC: 18-21H; PAL: 23-26H)
3	VDD1	–	Power supply terminal.
4	GIE	I	Circuit changing signal input terminal. PC, GSC and HPC monomulti circuits should be use as external delay circuit when at "L".
5	NP	I	NTSC/PAL mode control terminal. (H: NTSC; L: PAL)
6	IEO	O	Operation mode indication terminal. (H: INT mode; L: G/L mode)
7	GSY	I	GSY signal input terminal.
8	VDD1	–	Power supply terminal.
9	Vss1	–	Ground terminal.
10	TST1	–	TEST mode terminal.
11	TST2	–	TEST mode terminal.
12	TST3	–	TEST mode terminal.
13	TST4	–	TEST mode terminal.
14	Vss1	–	Ground terminal.
15	EBI	I	BSC odd line outside delay input terminal (PAL mode).
16	PBI	I	BSC external delay signal input terminal (NTSC mode). BSC even line external delay input terminal (PAL mode).
17	EBO	O	BSC odd line external delay output terminal (PAL mode).
18	PBO	O	BSC external delay output terminal (NTSC mode). BSC even line outside delay output terminal (PAL mode).
19	GSE	O	SC Pulse output terminal for PLL when G/L Mode.
20	Vss2	–	Ground terminal.
21	VDD2	–	Power supply terminal.
22	SPD	O	SC Phase Detector signal output terminal.

Pin	Name	I/O	Description
23	SVI	I	SC LOCK, VCXO signal input terminal.
24	SVO	O	SC LOCK, VCXO signal output terminal.
25	OSI	I	Oscillator input terminal.
26	OSO	O	Oscillator output terminal.
27	Vss2	–	Ground terminal.
28	VDD3	–	Power supply terminal.
29	GSC	I/O	GSC signsl input/output terminal.
30	Vss3	–	Ground terminal.
31	VDD4	–	Power supply terminal.
32	S2C	I/O	External component connecting terminal for SC2/H monomulti circuit.
33	Vss4	–	Ground terminal.
34	VDD5	–	Power supply terminal.
35	S1C	I/O	External component connecting terminal for SC2/H monomulti circuit.
36	Vss5	–	Ground terminal.
37	VDD5	–	Power supply terminal.
38	P2C	I/O	External component connecting terminal for SC2 odd line shifter monomulti circuit.
39	Vss6	–	Ground terminal.
40	VDD5	–	Power supply terminal.
41	GC2	I	Phase selecting (0°/90°/180°/270°) terminals for SC1, SC2 and BSC signals when G/L mode.
42	GC1	I	
43	GBS	I	GBS signal input terminal.
44	SHC	I	90° Shifter switching signal input terminal for SC1, SC2 and BSC signals. (NTSC mode) (H: 0°; L: 90°)
45	SC1	O	Subcarrier signal output terminal.
46	SC2	O	Subcarrier signal output terminal.
47	PSQ	O	PAL Squar signal output terminal. (PAL mode)
48	BFP	O	Burst Flag Pulse output terminal.
49	GBG	O	GBG Pulse output terminal.
50	ZBR	O	ZBR signal output terminal.
51	BSC	O	Burst Subcarrier signal output terminal.
52	Vss1	–	Ground terminal.
53	VDD1	–	Power supply terminal.
54	ALX	I/O	External component connecting terminal for ALC monomulti circuit.
55	AL1	O	ALM1 signal output terminal.
56	ALC	O	ALC Gate Pulse output terminal.
57	FLM	O	Color Frame Pulse output terminal. (NTSC: 1/4V; PAL: 1/8V)
58	VDR	O	V Drive signal output terminal.
59	VST	O	V Start signal output terminal.
60	VBL	O	V Blanking signal output terminal.
61	VIS	O	VIS signal output terminal.

Pin	Name	I/O	Description
62	VRS	I	VRS signal input terminal.
63	HB1	I	HB1 signal input terminal.
64	VDD1	–	Power supply terminal.
65	Vss1	–	Ground terminal.
66	HB2	I	HB2 signal input terminal.
67	HRS	I	HRS signal input terminal.
68	HD	O	Horizontal Drive Pulse output terminal.
69	CP	O	Clamp Pulse output terminal.
70	HWS	O	HWS signal output terminal.
71	FH	O	FH signal output terminal.
72	BCP	O	Burst Clamp Pulse signal output terminal.
73	Vss1	–	Ground terminal.
74	VDD1	–	Power supply terminal.
75	HPE	O	HPE signal output terminal.
76	GPE	O	GPE signal output terminal.
77	Vss7	–	Ground terminal.
78	VDD7	–	Power supply terminal.
79	HPC	O	HPC signal output terminal.
80	Vss8	–	Ground terminal.
81	VDD8	–	Power supply terminal.
82	GPC	I/O	GPC signal input/output terminal.
83	Vss9	–	Ground terminal.
84	VDD9	–	Power supply terminal.
85	HPI	I	Horizontal Phase signal input terminal.
86	HPO	O	Horizontal Phase signal output terminal.
87	HPD	O	H LOCK P.D. signal output terminal.
88	PVI	I	VCXO terminal for Digital mixer.
89	PVO	O	VCXO terminal for Digital mixer.
90	PVD	O	P.D. signal output terminal for VCXO of Digital mixer (PAL mode only).
91	LPT	I	LPT signal input terminal.
92	VDD1	–	Power supply terminal.
93	Vss1	–	Ground terminal.
94	VWS	O	V Wipe signal output terminal.
95	CVS	O	Composite V Sample signal output terminal.
96	CSB	O	Composite System Blanking signal output terminal.
97	CPB	O	Composite Pre Blanking signal output terminal.
98	CSY	O	Composite Sync signal output terminal.
99	Vss1	–	Ground terminal.
100	VB2	I	Pulse Width adjusting terminal for Composite Blanking Pulse and V Blanking Pulse. (NTSC:18-21H; PAL: 23-26H)

6.4. IC23 on the Sync/Encoder Board is using the Dual Monostable Multivibrator IC SN74LS221S.
Description of this IC is as follows:


$\overline{1A}$ 1
1B 2
$\overline{1CLR}$ 3
$\overline{1Q}$ 4
2Q 5
2CX 6
2Rx/Cx 7
GND 8
16 Vcc
15 1Rx/Cx
14 1CX
13 1Q
12 $\overline{2Q}$
11 $\overline{2CLR}$
10 2B
9 $\overline{2A}$

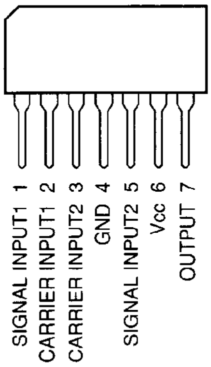
(TOP VIEW)

Truth Table

INPUTS			OUTPUTS		NOTE
$\overline{A}$	B	$\overline{CLR}$	Q	$\overline{Q}$	
↓	H	H	⎍	⊔	Output Pulse
*	L	H	L	H	Inhibit
H	*	H	L	H	Inhibit
L	↑	H	⎍	⊔	Output Pulse
L	H	↑	⎍	⊔	Output Pulse
*	*	L	L	H	Inhibit

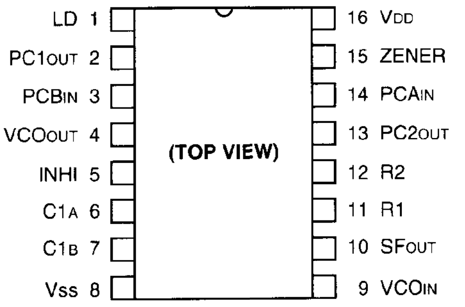
* : Don't care.

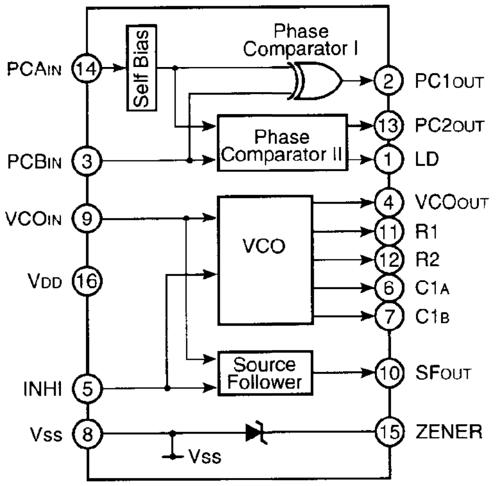
6.5. IC36 and IC37 on the Sync/Encoder Board are using the Video Amplifier/Balance Modulator IC AN614.
Description of this IC is as follows:


SIGNAL INPUT1 1
CARRIER INPUT1 2
CARRIER INPUT2 3
GND 4
SIGNAL INPUT2 5
Vcc 6
OUTPUT 7

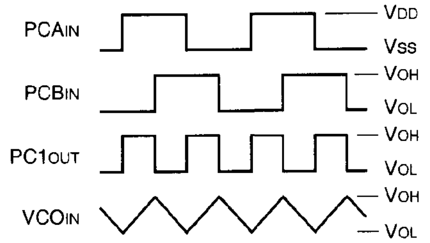
Pin	Name	I/O	Description
1	SIGNAL INPUT1	I	Signal input terminal.
2	CARRIER INPUT1	I	Carrier input terminal.
3	CARRIER INPUT2	I	Carrier input terminal.
4	GND	–	Ground terminal.
5	SIGNAL INPUT2	I	Signal input terminal.
6	Vcc	–	Power supply terminal.
7	OUTPUT	O	Signal output terminal.

6.6. IC53 on the Sync/Encoder Board is using the CMOS Phase Locked Loop IC YWMC14046BF.
Description of this IC is as follows:

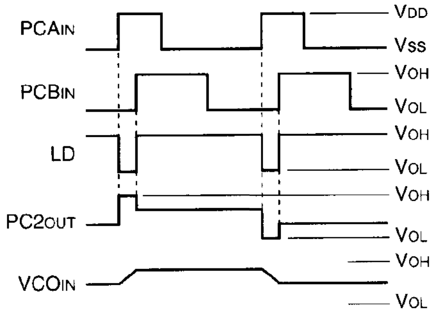

LD 1
PC1OUT 2
PCBIN 3
VCOOUT 4
INHI 5
C1A 6
C1B 7
Vss 8
16 VDD
15 ZENER
14 PCAIN
13 PC2OUT
12 R2
11 R1
10 SFOUT
9 VCOIN
(TOP VIEW)


PCAIN ⑭
Self Bias
Phase Comparator I
② PC1OUT
⑬ PC2OUT
Phase Comparator II
① LD
PCBIN ③
VCOIN ⑨
VCO
④ VCOOUT
⑪ R1
⑫ R2
⑥ C1A
⑦ C1B
VDD ⑯
Source Follower
⑩ SFOUT
INHI ⑤
Vss ⑧
⑮ ZENER
Vss

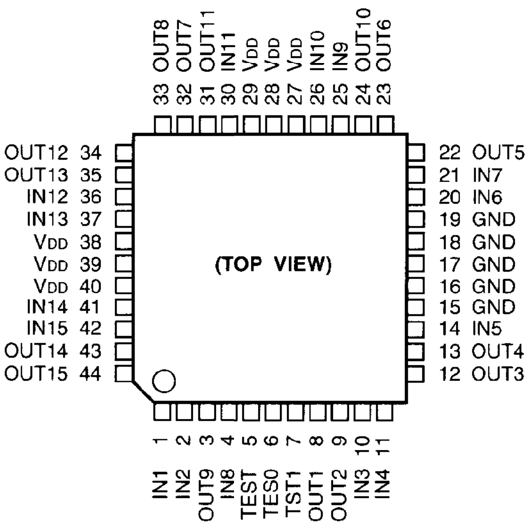
Phase Comparator I


PCAIN
VDD
Vss
PCBIN
VOH
VOL
PC1OUT
VOH
VOL
VCOIN
VOH
VOL

Phase Comparator II

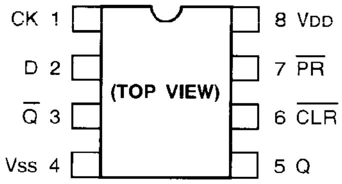

PCAIN
VDD
Vss
PCBIN
VOH
VOL
LD
VOH
VOL
PC2OUT
VOH
VOL
VCOIN
VOH
VOL

6.7. IC52 on the Sync/Encoder Board is using the Interleave Lock CMOS Gate Array IC YWUPD65K104. Description of this IC is as follows:


33 OUT8
32 OUT7
31 OUT11
30 IN11
29 VDD
28 VDD
27 VDD
26 IN10
25 IN9
24 OUT10
23 OUT6
OUT12 34
OUT13 35
IN12 36
IN13 37
VDD 38
VDD 39
VDD 40
IN14 41
IN15 42
OUT14 43
OUT15 44
(TOP VIEW)
22 OUT5
21 IN7
20 IN6
19 GND
18 GND
17 GND
16 GND
15 GND
14 IN5
13 OUT4
12 OUT3
1 IN1
2 IN2
3 OUT9
4 IN8
5 TEST
6 TES0
7 TST1
8 OUT1
9 OUT2
10 IN3
11 IN4

Pin	Name	I/O	Description
1	IN1	I	IN1 signal input terminal.
2	IN2	I	IN2 signal input terminal.
3	OUT9	O	OUT9 signal output terminal.
4	IN8	I	IN8 signal input terminal.
5	TEST	I	Test terminal.
6	TES0	I	Test terminal.
7	TES1	I	Test terminal.
8	OUT1	O	OUT1 signal output terminal.
9	OUT2	O	OUT2 signal output terminal.
10	IN3	I	IN3 signal input terminal.
11	IN4	I	IN4 signal input terminal.
12	OUT3	O	OUT3 signal output terminal.
13	OUT4	O	OUT4 signal output terminal.
14	IN5	I	IN5 signal input terminal.
15	GND	–	Ground terminal.
16	GND	–	Ground terminal.
17	GND	–	Ground terminal.
18	GND	–	Ground terminal.
19	GND	–	Ground terminal.
20	IN6	I	IN6 signal input terminal.
21	IN7	I	IN7 signal input terminal.
22	OUT5	O	OUT5 signal output terminal.
23	OUT6	O	OUT6 signal output terminal.
24	OUT10	O	OUT10 signal output terminal.
25	IN9	I	IN9 signal input terminal.
26	IN10	I	IN10 signal input terminal.
27	VDD	–	Power supply terminal.
28	VDD	–	Power supply terminal.
29	VDD	–	Power supply terminal.
30	IN11	I	IN11 signal input terminal.
31	OUT11	O	OUT11 signal output terminal.
32	OUT7	O	OUT7 signal output terminal.
33	OUT8	O	OUT8 signal output terminal.
34	OUT12	O	OUT12 signal output terminal.
35	OUT13	O	OUT13 signal output terminal.
36	IN12	I	IN12 signal input terminal.
37	IN13	I	IN13 signal input terminal.
38	VDD	–	Power supply terminal.
39	VDD	–	Power supply terminal.
40	VDD	–	Power supply terminal.
41	IN14	I	IN14 signal input terminal.
42	IN15	I	IN15 signal input terminal.
43	OUT14	O	OUT14 signal output terminal.
44	OUT15	O	OUT15 signal output terminal.

6.8. IC54 on the Sync/Encoder Board is using the Single D-FF with Preset and Clear IC YWTC7W74FU. Description of this IC is as follows:


CK 1
D 2
$\overline{Q}$ 3
Vss 4
(TOP VIEW)
8 VDD
7 $\overline{PR}$
6 $\overline{CLR}$
5 Q

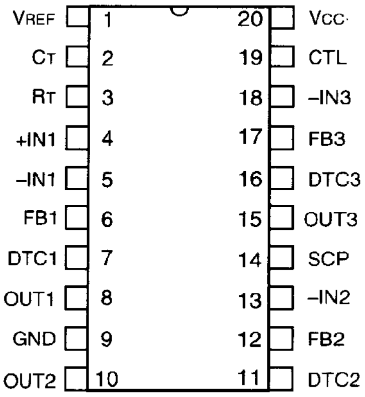
Truth Table

INPUTS				OUTPUTS		Function
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\overline{Q}$	
L	H	*	*	L	H	Clear
H	L	*	*	H	L	Preset
L	L	*	*	H	H	——
H	H	L	↑	L	H	——
H	H	H	↑	H	L	——
H	H	*	↓	Qn	$\overline{Qn}$	No Change

* : Don't care.

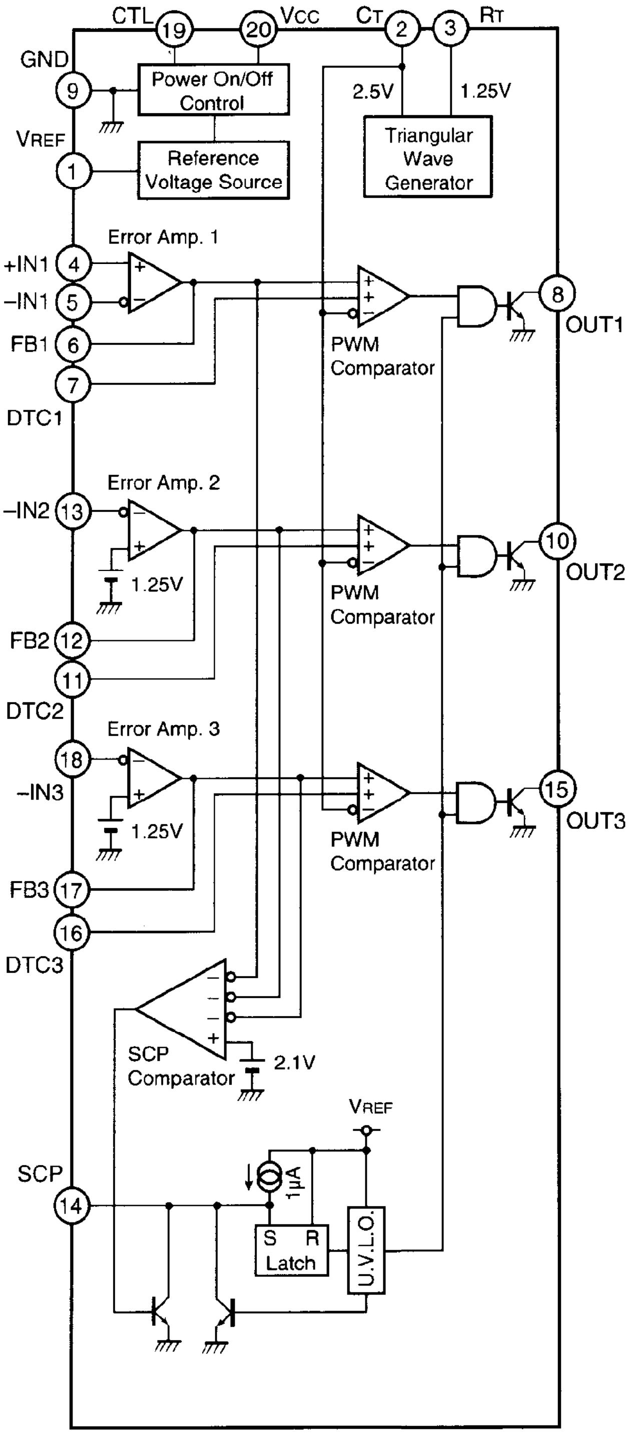
7. Power Board

7.1. IC1 on the Power Board is using the 3-ch Switching Regulator Controller IC YWMB3782PF.
Description of this IC is as follows:


VREF 1
CT 2
RT 3
+IN1 4
–IN1 5
FB1 6
DTC1 7
OUT1 8
GND 9
OUT2 10
20 VCC
19 CTL
18 –IN3
17 FB3
16 DTC3
15 OUT3
14 SCP
13 –IN2
12 FB2
11 DTC2

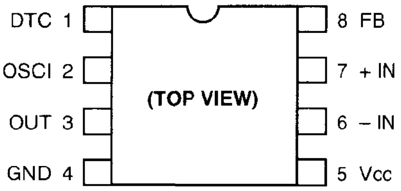
(TOP VIEW)

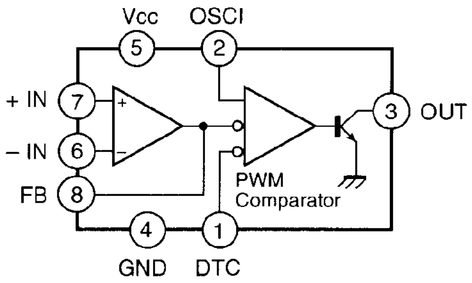
Pin	Name	I/O	Description
1	VREF	O	Reference Voltage output terminal (2.50V typical).
2	CT	–	Timing capacitor connecting terminal.
3	RT	–	Timing resistor connecting terminal.
4	+IN1	I	Non-invereting input terminal for Error Amp. 1.
5	–IN1	I	Invereting input terminal for Error Amp. 1.
6	FB1	–	Feedback terminal for Error Amp. 1.
7	DTC1	I	Dead Time Control 1 signal input terminal.
8	OUT1	O	Open Collector output terminal 1 (50mA maximum).
9	GND	–	Ground terminal.
10	OUT2	O	Open Collector output terminal 2 (50mA maximum).
11	DTC2	I	Dead Time Control 2 signal input terminal.
12	FB2	–	Feedback terminal for Error Amp. 2.
13	–IN2	I	Invereting input terminal for Error Amp. 2.
14	SCP	–	Short Circuit Protection terminal.
15	OUT3	O	Open Collector output terminal 3 (50mA maximum).
16	DTC3	I	Dead Time Control 3 signal input terminal.
17	FB3	–	Feedback terminal for Error Amp. 3.
18	–IN3	I	Invereting input terminal for Error Amp. 3.
19	CTL	I	Power Control terminal.
20	Vcc	–	Power Supply terminal.


CTL 19
20 VCC
CT 2
3 RT
GND 9
Power On/Off Control
2.5V
1.25V
VREF 1
Reference Voltage Source
Triangular Wave Generator
Error Amp. 1
+IN1 4
–IN1 5
FB1 6
7 DTC1
PWM Comparator
8 OUT1
Error Amp. 2
–IN2 13
1.25V
FB2 12
11 DTC2
PWM Comparator
10 OUT2
Error Amp. 3
18 –IN3
1.25V
FB3 17
16 DTC3
PWM Comparator
15 OUT3
SCP Comparator
2.1V
VREF
SCP 14
1μA
S R Latch
U.V.L.O.

7.2. IC11 on the Power Board is using the Switching Regulator IC YWBA9701F.

Description of this IC is as follows:

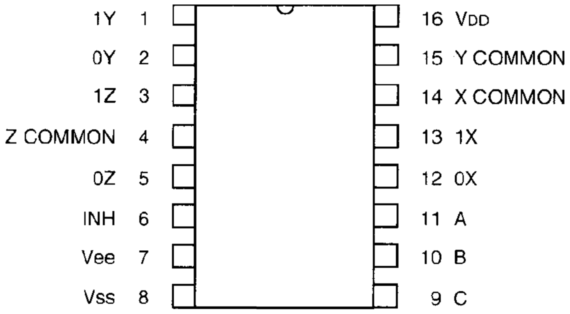

DTC 1
OSCI 2
OUT 3
GND 4
(TOP VIEW)
8 FB
7 + IN
6 − IN
5 Vcc


Vcc
OSCI
5
2
+ IN 7
− IN 6
FB 8
3 OUT
PWM
Comparator
4
1
GND
DTC

8. Preprocess Board

8.1. IC10, IC12, IC104, IC105, IC304, IC305, IC504 and IC505 on the Preprocess Board and IC32 and IC38 on the Sync/Encoder Board are using the Triple 2-ch Analog Multiplexers/Demultiplexers IC YWUPD4053 BG.

Description of this IC is as follows:


1Y 1
0Y 2
1Z 3
Z COMMON 4
0Z 5
INH 6
Vee 7
Vss 8
16 VDD
15 Y COMMON
14 X COMMON
13 1X
12 0X
11 A
10 B
9 C

Truth Table

INHIBIT	C	B	A	X COMMON	Y COMMON	Z COMMON
L	L	L	L	0X	0Y	0Z
L	L	L	H	1X	0Y	0Z
L	L	H	L	0X	1Y	0Z
L	L	H	H	1X	1Y	0Z
L	H	L	L	0X	0Y	1Z
L	H	L	H	1X	0Y	1Z
L	H	H	L	0X	1Y	1Z
L	H	H	H	1X	1Y	1Z
H	*	*	*	NONE	NONE	NONE

* : Don't care.

ORDER NO. AVS9501939C8

Service Manual

Colour Video Camera

WV-F565

Vol. 2

Adjustment Procedure

Vol. 2

CONTENTS

Test Equipment Required 2-1
Disassembling Procedure for Adjustment 2-2
Replacement Procedure for Head Optical Ass'y 2-2
Connection and Setting Up for Adjustment 2-4

Adjustment Procedure

Power Board 2-6
Sync/Encoder Board 2-6
Drive Board 2-9
Preamp. Board 2-10
Preprocess Board 2-12
Mother Board 2-18
System Control Board 2-19
Location of Test Points and Adjusting Controls 2-22
Chip Components 2-23

Panasonic

ADJUSTMENT PROCEDURE

1. Test Equipment Required

- The following test Equipments are required for adjustment of the Colour Video Camera WV-F565.
- Oscilloscope
- Frequency Counter
- Digital Voltmeter
- Vectorscope
- Waveform Monitor
- Underscanned Colour Video Monitor
- 12 V DC Power Supply Unit
- Lux Meter
- Lighting (200 footcandles (2,000 lux), Colour Temperature 3,200°K)
- Camera Adaptor (WV-AD500)
- Tripod
- Tripod Mounting Adaptor (WV-QT700)
- 1.5" Electronic Viewfinder (WV-VF40)
- Auto Iris Servo Control Zoom Lens
- Resolution Test Chart (Part No.: YWV1400RB99)
- Logarithmic Gray Scale Chart (Part Number: YWV2310RB99) as shown Fig. 1-1.

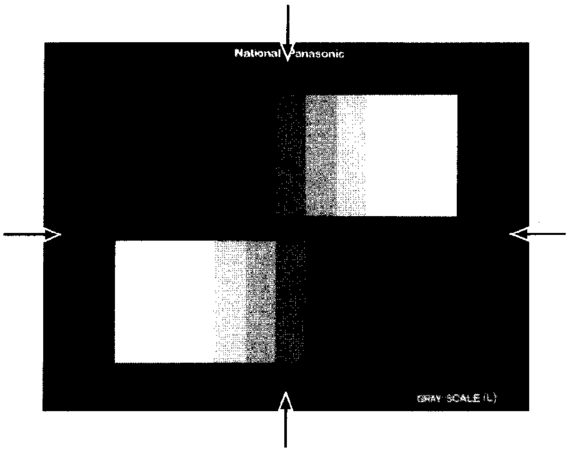


Fig. 1-1

- Extension Cable (Part Number: YWF250ENCH01) for Drive Board as shown Fig. 1-2.

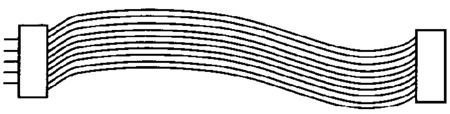


Fig. 1-2

- Extension Boards (Part Numbers: YWV0EA0258AN and YWV0EA0229AN) for Preprocess Board, Sync/Encoder Board, System Control Board, Digital Process Board and Power Board as shown Fig. 1-3.

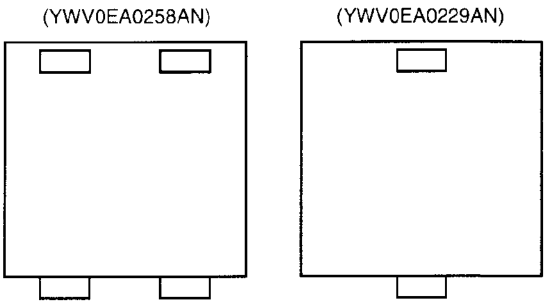


Fig. 1-3

- Extension Cable (Part Number: YWV0EA0231AN) for System Control Board and Digital Process Board as shown Fig. 1-4.

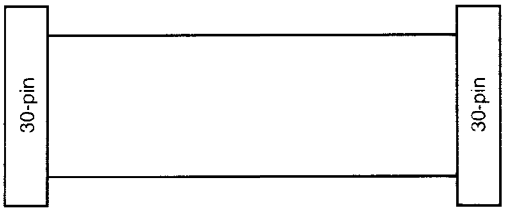


Fig. 1-4

- Extension Cable (Part Number: YWV0EA0230AN) for Head Optical Ass'y as shown Fig. 1-5.

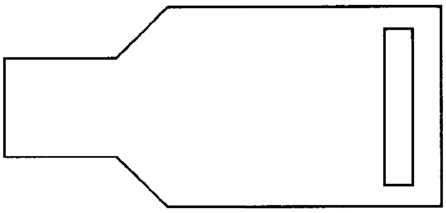


Fig. 1-5

- Extension Cable (Part Number: YWV0EA0232AN) for Digital Process Board as shown Fig. 1-6.

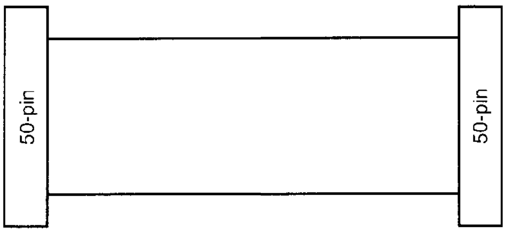


Fig. 1-6

2. Disassembling Procedure for Adjustment

- Loosen four screws that secure the Left Side Cover (viewed from the front) and remove the Side Cover as shown in Fig. 2-1.

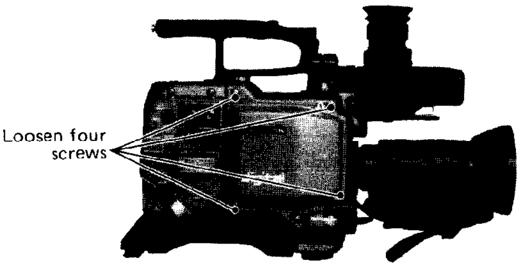

Loosen four
screws

Fig. 2-1

- Loosen four screws that secure the Left Side Cover (viewed from the front) and remove the Side Cover as shown in Fig. 2-2.

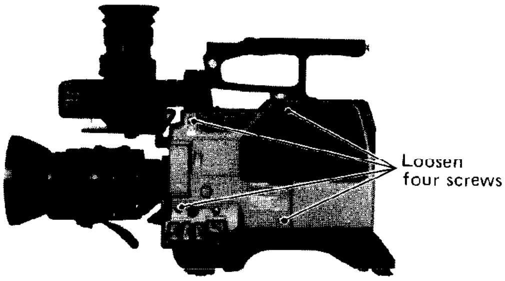

Loosen
four screws

Fig. 2-2

- Loosen two screws and remove one screw that secure the Preamp Board and remove the Preamp Board shown in Fig. 2-3.

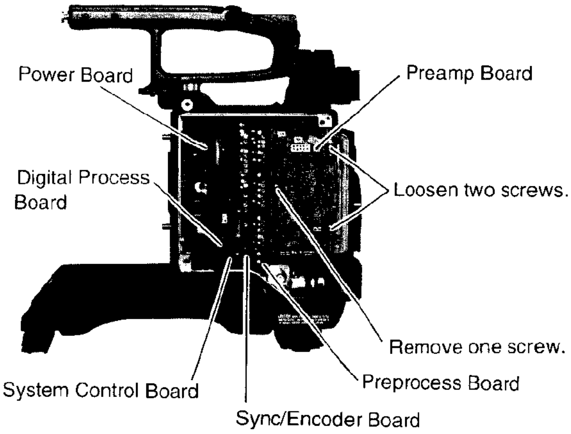

Power Board
Preamp Board
Digital Process
Board
Loosen two screws.
Remove one screw.
System Control Board
Preprocess Board
Sync/Encoder Board

Fig. 2-3

3. Replacement Procedure for Head Optical Ass'y

- Remove the Servo Control Zoom Lens, Electronic Viewfinder and Camera Adaptor.
- Remove four screws that secure the Bottom Plate and remove the Bottom Plate as shown in Fig. 3-1.
- Remove two screws that secure the Shoulder Pad and remove the Shoulder Pad as shown in Fig. 3-1.

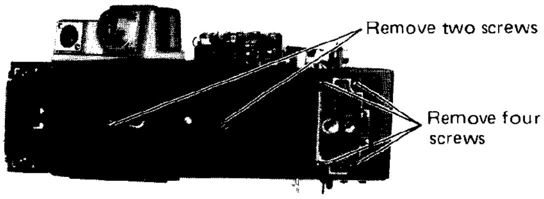

Remove two screws
Remove four
screws

Fig. 3-1

- Remove four screws that secure the Bottom Cover and remove the Bottom Cover as shown in Fig. 3-2.

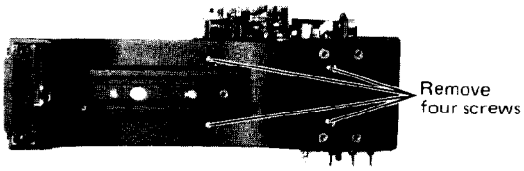

Remove
four screws

Fig. 3-2

- Disconnect the DC plug from the Camera by pulling out as shown in Fig. 3-3.

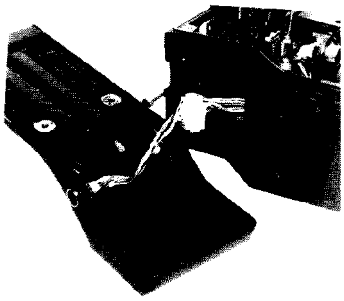


Fig. 3-3

- Remove four screws that secure the Front Cover Ass'y and remove the Front Cover Ass'y as shown in Fig. 3-4.
- Remove six screws that secure the Front Cover and remove the Front Cover as shown in Fig. 3-4.

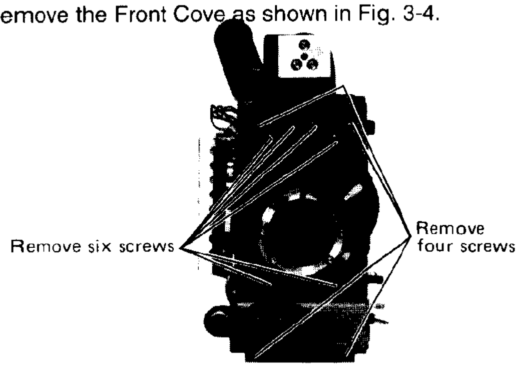

Remove six screws
Remove four screws

Fig. 3-4

- Disconnect eight connectors and remove the Head Optical Ass'y as shown in Fig. 3-5.

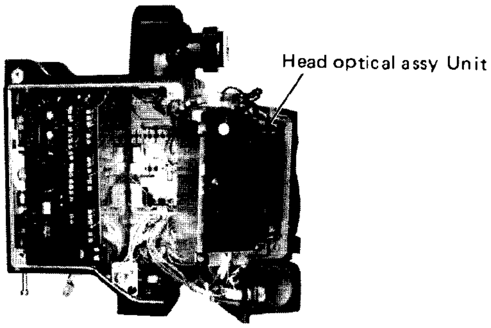

Head optical assy Unit

Fig. 3-5

- Loosen two screws and remove one screw that secure the Preamp Board and remove the Preamp Board as shown in Fig. 3-6.

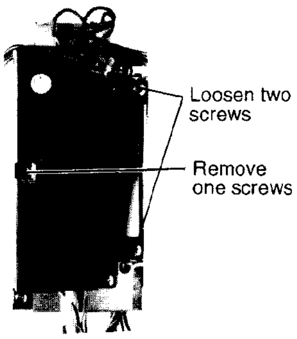

Loosen two screws
Remove one screws

Fig. 3-6

- Remove five screws that secure the Shield Cover and remove the Shield Cover as shown in Fig. 3-7.

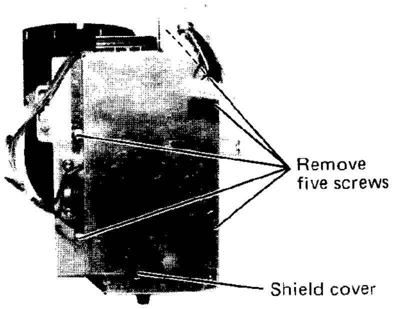

Remove five screws
Shield cover

Fig. 3-7

4. Connection and Setting Up for Adjustment

4.1. Connection

- Fig. 4-1 shows the Connecting Diagram for adjustment of the Colour Video Camera WV-F565.

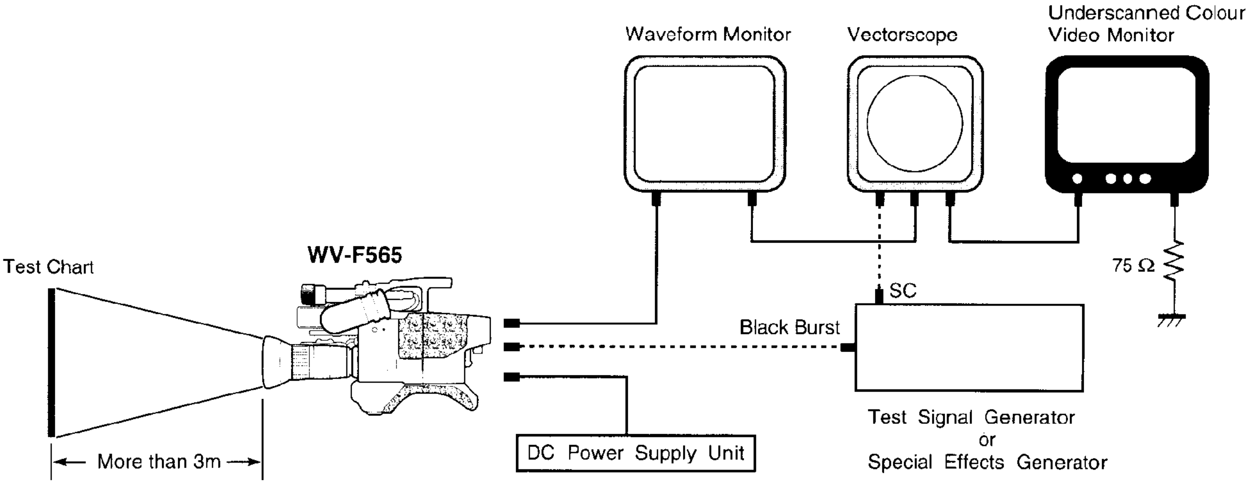


Fig. 4-1

- Set the Auto Iris Servo Control Zoom Lens to the Lens Connector of the Colour Video Camera WV-F565.
- Set the Camera Adaptor WV-AD550 to the WV-F565.
- Connect the Video Input Connector of the Waveform Monitor to the Video Output Connector of the WV-AD550.
- Connect the Video Input Connector of the Vectorscope to the Video Output Connector of the Video Output Connector of the Waveform Monitor using the coaxial cable.
- Connect the Video Input Connector of the Underscanned Colour Video Monitor to the Video Output Connector of the Vectorscope using the coaxial cable.
- Connect +12 V DC Power Supply Unit to the DC Input Connector of the WV-AD500.
- Terminate Input terminal of the Underscanned Colour Video Monitor with 75 Ω.
- Connect the probe of the Oscilloscope, the Frequency Counter and the Digital Voltmeter to desired Test Point in each Adjustment step.

4.2. Initial Setting of the Switches and the Controls

- An initial setting of the Switches and the Controls are as follows:

(Front)

Lens Iris Selection Switch	NOR

(Right Side viewed from front)

High Gain Selection Switch	LOW (0dB)
White Balance Selection Switch	AWC PRESET
Colour Bar/Night Eye/Camera Selection Switch	BAR
Filter Selection Wheel	1 (3200°K)

(Mother Board)

Back Light Compensation Switch (SW11)	OFF
Scene File Selection Switch (SW10)	USER A
Clean DNR Selection Switch (SW9)	OFF
User Set Switch (SW2)	OFF
High Light Chroma Switch (SW3)	OFF
Detail Level Selection Switch (SW4)	OFF
Lens Iris Control (VR4)	Mechanical Center
Total Pedestal Level Control (VR3)	Mechanical Center

- All adjustment steps should be done with this initial setting, unless otherwise specified.

4.3. Mode Setting for Adjustment

- The mode setting for adjustment should be done with the **User Set Switch (SW2)**, the **Page Switch (SW8)**, the **Item/Noise Suppress Switch (SW7)**, the **Up/Zoom Switch** and the **Down/Level Indicator Switch (SW5)** on the Mother Board.
- Set the **User Set Switch** to 1 or 2 position so that the menu as shown Table 4-1 should be displayed on the Electronic Viewfinder or the Underscanned Colour Video Monitor.

USER A(IRIS•SHTR•GAIN)			
NO.1			
→ PEAK/AVG	P	I	A
AREA		TOP	CUT
# AUTO IRIS		ADJ	OFF
# SHUTTER SW		ACTIVE	
# SHUTTER MODE		STEP	
# STEP		1/100	
# SYNCHRO		60.5HZ	
# FLD/FRM		FIELD	
# GAIN SW		0/9/18DB	
# NIGHT EYE		HI	

Table 4-1

- Confirm that each item has been set as shown in Table 4-1.
- Open the page 8 by the **Page Switch** so that the menu as shown in Table 4-2 should be displayed on the Electronic Viewfinder or the Underscanned Colour Video Monitor.

USER A(COMP)	*1	(0DB)
NO.8 (.35-.55)	CURR	NOW
→* GAMMA(NOR)	.45	.45
* GAMMA(SHTR)	.45	.45
* KNEE POINT	98	98%
* WHITE CLIP	110	110%
FLARE R	0	0
FLARE G	0	0
FLARE B	0	0
B STRETCH	OFF	OFF
# BLACK SHD	ON	ON
# WHITE SHD	OFF	OFF

Table 4-2

- Confirm that each item has been set as shown in Table 4-2.
- After confirmed, set the **User Set Switch** to Off position.
- All adjustment steps should be done with this standard menu, unless otherwise specified.

4.4. Setting Up

- Set the Logarithmic Gray Scale Chart.
- Incident light intensity of 2,000 ± 50 lux (Colour Temperature: 3,200°K) on the Logarithmic Gray Scale Chart.
- Aim the Camera at the Logarithmic Gray Scale Chart. (The distance between the Camera and the Logarithmic Gray Scale Chart should be more than 3m.)
- Set the Camera so that the Logarithmic Gray Scale Chart becomes full picture on the Underscanned Colour Video Monitor.
- Connect the Oscilloscope to TP201 (G IN) on the Preamp Board.
- Set the Iris Control Selection Switch of the Lens to Manual.
- Turn the Lens Focus to obtain correct focal point.
- Set the Lens Iris so that the peak level of the Gray Scale becomes 250 ± 5 mVp-p as shown in Fig. 4-2.

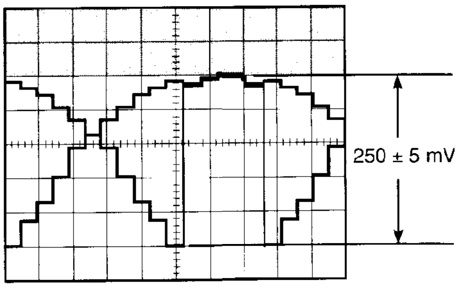


Fig. 4-2

- All adjustment steps should be done with this standard picture, unless otherwise specified.

5. Adjustment Procedure

- Refer to the Location of the Test Points and Adjusting Controls on page 22.

■ Power Board Adjustment

(1) SAW Adjustment

Test Point: TP4 (SAW) **Power Board**
Adjust: VR2 (SAW) **Power Board**

- Connect the Oscilloscope to TP4.
- Trigger the Oscilloscope at TP5 (HD) on the Mother Board.
- Adjust VR2 so that the phase of the SAW waveform becomes 4T as shown in Fig. 5-1.

Note: The center between A-point and B-point becomes up side of the dotted line.

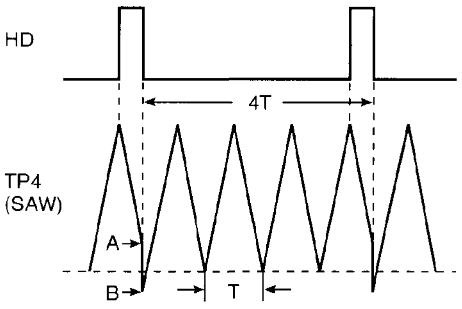


Fig. 5-1

(2) Voltage Adjustment

Test Point: TP5 (+4.95V) **Power Board**
Adjust: VR1 (VOLTAGE ADJ) **Power Board**

- Connect the Digital Voltmeter to TP5.
- Adjust VR1 to obtain + 4.95 ± 0.01V.

■ Sync/Encoder Board Adjustment

(3) Internal Subcarrier Adjustment

Test Point: TP9 (SC) **Sync/Encoder Board**
Adjust: CT3 (INT) **Sync/Encoder Board**

- Connect the Frequency Counter to TP9.
- Adjust CT3 to obtain 4.4336175 MHz ± 5 Hz.

(4) Interleaving Adjustment

Test Point: TP10 (INTERLEAVING)
Sync/Encoder Board
Adjust: CT2 (INTERLEAVING)
Sync/Encoder Board

- Connect the Oscilloscope to TP10.
- Adjust CT2 so that the signal level becomes 2.5 ± 0.1 V as shown in Fig. 5-2.

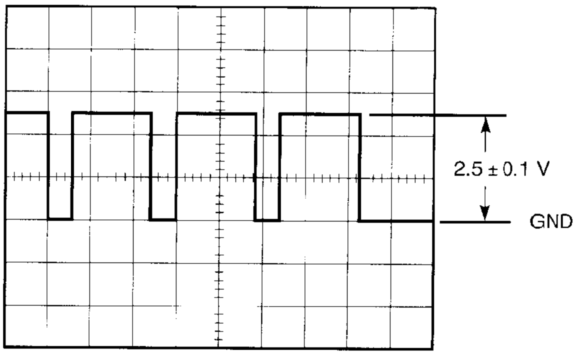


Fig. 5-2

(5) White Balance Adjustment

Test Point: Video Output Connector **Camera Adaptor**
Adjust: VR11 (B-Y WHITE BAL)
Sync/Encoder Board
VR12(R-Y WHITE BAL)
Sync/Encoder Board

- Set the Gain Control of the Vectorscope to maximum.
- Adjust VR11 and VR12 alternately so that the vector positions at the center of the Vectorscope as shown in Fig. 5-3.

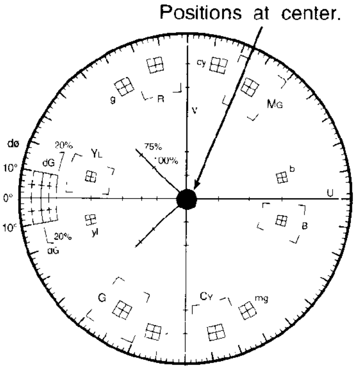


Fig. 5-3

(6) R-Y/B-Y Carrier Adjustment

Test Point: Video Output Connector **Camera Adaptor**
Adjust: VR8 (B-Y CARRIER BAL)
Sync/Encoder Board
VR9 (R-Y CARRIER BAL)
Sync/Encoder Board

- Set the Gain Control of the Vectorscope to maximum.
- Adjust VR8 and VR9 alternately so that the vector positions at the center of the Vectorscope as shown in Fig. 5-4.

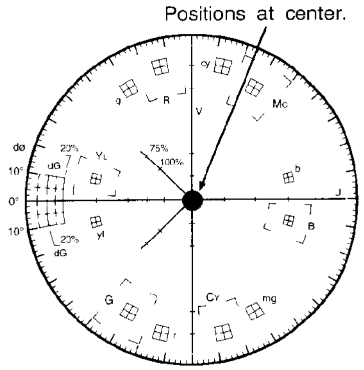


Fig. 5-4

(7) S-Y Gain and S-Y Sync Gain Adjustment

Test Point: Pin 28 of CN1 Sync/Encoder Board

Adjust: VR7 (Y-GAIN (S)) Sync/Encoder Board

VR18 (SYNC GAIN (S)) Sync/Encoder Board

- Connect the Oscilloscope to the pin 28 of CN1.
- Adjust VR7 so that the Y signal level becomes 700 ± 14 mV as shown in Fig. 5-5.
- Adjust VR18 so that the Sync signal level becomes 300 ± 14 mV as shown in Fig. 5-5.

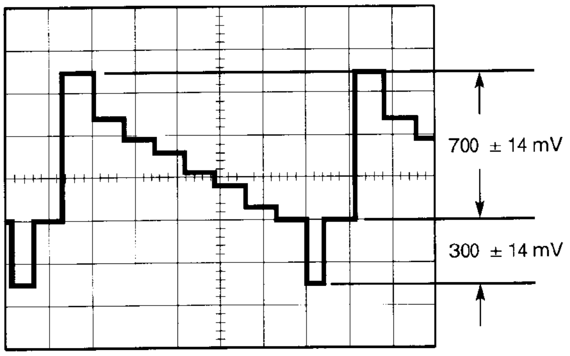


Fig. 5-5

(8) S-C Gain Adjustment

Test Point: Pin 29 of CN1 Sync/Encoder Board

Adjust: VR10 (CHROMA GAIN (S))

Sync/Encoder Board

- Connect the Oscilloscope to the pin 29 of CN1.
- Adjust VR10 so that the Burst level becomes 300 ± 14 mV as shown in Fig. 5-6.

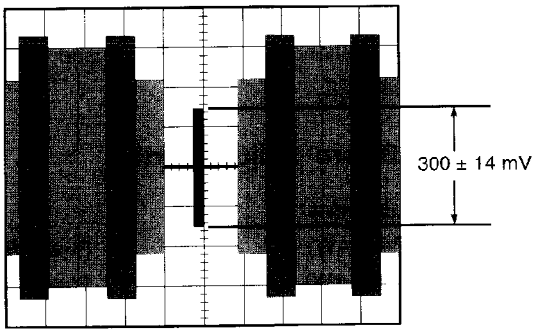


Fig. 5-6

(9) MII-Y Gain and MII-Y Sync Gain Adjustment

Test Point: Pin 22 of CN1 Sync/Encoder Board

Adjust: VR17 (Y GAIN (MII)) Sync/Encoder Board

VR4 (SYNC GAIN (MII)) Sync/Encoder Board

- Connect the Oscilloscope to the pin 22 of CN1.
- Adjust VR17 so that the Y signal level becomes 700± 14 mV as shown in Fig. 5-7.
- Adjust VR4 so that the Sync signal level becomes 300± 14 mV as shown in Fig. 5-7.

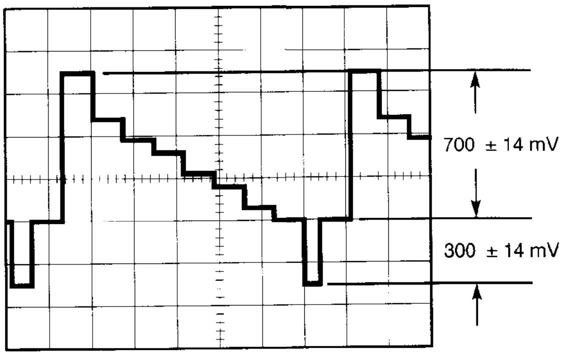


Fig. 5-7

(10) R-Y/B-Y Gain Adjustment

Test Point: Pin 24 of CN1 (R-Y) Sync/Encoder Board

Pin 25 of CN1 (B-Y) Sync/Encoder Board

Adjust: VR16 (PR GAIN) Sync/Encoder Board

VR15 (PB GAIN) Sync/Encoder Board

- Connect the Oscilloscope to the pin 24 of CN1.
- Adjust VR16 so that the R-Y signal level becomes 525 ± 14 mV as shown in Fig. 5-8.

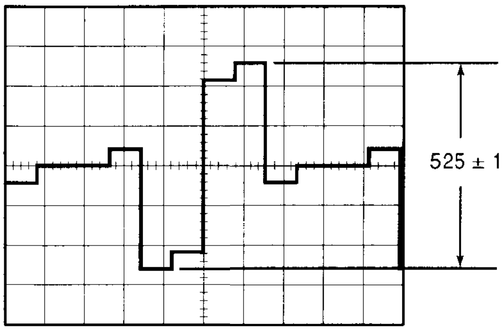


Fig. 5-8

- Change the connection of the Oscilloscope to the pin 25 of CN1.
- Adjust VR15 so that the B-Y signal level becomes 525 ± 14 mVp-p as shown in Fig. 5-9.

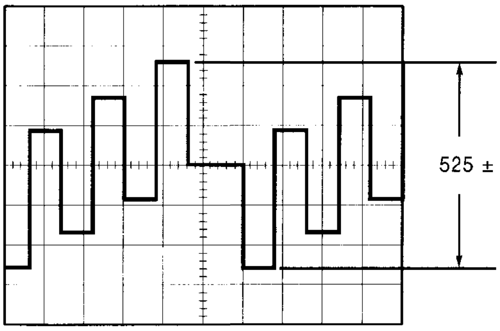


Fig. 5-9

(11) Colour Bar Adjustment

Test Point:	**Video Output Connector**	**Camera Adaptor**
Adjust:	**VR1 (SC-H)**	**Sync/Encoder Board**
	VR2 (QUAD)	**Sync/Encoder Board**
	VR3 (SUB-QUAD)	**Sync/Encoder Board**
	VR19 (R-Y GAIN)	**Sync/Encoder Board**
	VR5 (COMPOSITE VIDEO GAIN)	**Sync/Encoder Board**
	VR6 (CHROMA GAIN)	**Sync/Encoder Board**
	VR14 (BURST PHASE)	**Sync/Encoder Board**
	VR18 (SYNC GAIN(S))	**Sync/Encoder Board**
	VR13 (BURST GAIN)	**Sync/Encoder Board**

- Set the mode of the Vectorscope to the VECT + SC-H position.
- Adjust VR1 so that the SC-H signal vector becomes 180 ± 2° as shown in Fig. 5-10.
- Adjust VR14 so that the phase difference in between the burst signals becomes 90 ± 1° as shown in Fig. 5-10.

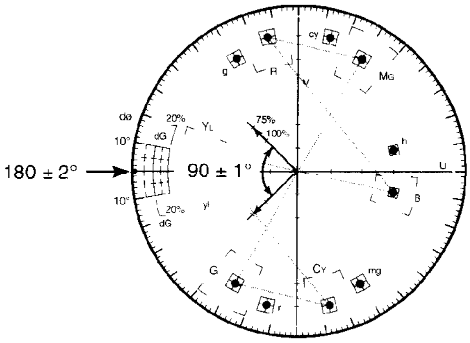


Fig. 5-10

- Adjust VR5 so that the Y signal level becomes 700 ± 7 mV as shown in Fig. 5-11.
- Adjust VR18 so that the Sync signal level becomes 300 ± 7 mV as shown in Fig. 5-11.
- Adjust VR13 so that the Burst signal level becomes 300 ± 7 mV as shown in Fig. 5-11.

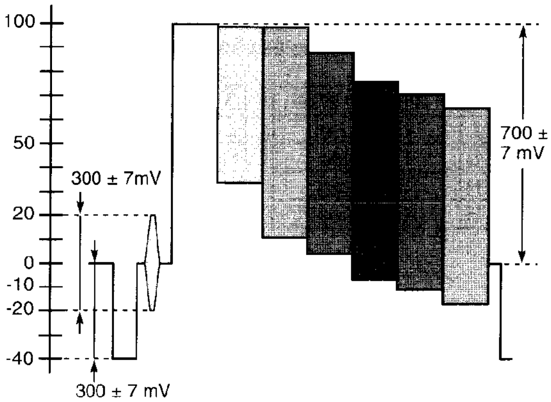


Fig. 5-11

- Adjust VR2, VR3, VR6 and VR19 so that all vectors becomes fall into their respective boxes as shown in Fig. 5-12.

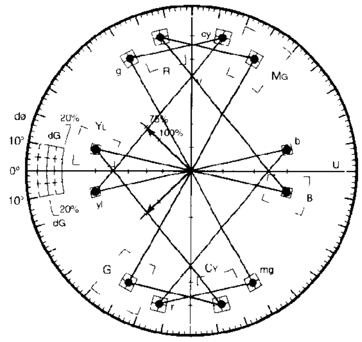


Fig. 5-12

(12) Blanking Switch Setting (Confirmation)

Test Point: Video Output Connector Camera Adaptor
Adjust: SW1 (H.V BLANKING) Sync/Encoder Board

- The relationship of the SW1 is as shown in Fig. 5-13.
- Set the SW1-1 and SW1-2 (H. BLANKING) to the "H" positions confirm that the H. Blanking Width becomes 12.0 µsec as shown in Fig. 5-14.
- Set the SW1-3 and SW1-4 (V. BLANKING) to the "H" positions confirm that the V. Blanking Width becomes 25H as shown in Fig. 5-15.

SW1 (H.V BLANKING)

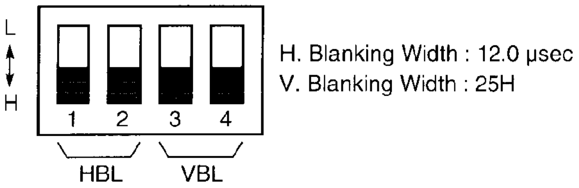


Fig. 5-13

- The setting of the SW1 is as shown in Table 5-1.

1	2	H Blanking Width
L	L	11.8 µsec
H	L	11.9 µsec
H	H	12.0 µsec
L	H	12.1 µsec

3	4	V Blanking Width
L	L	23H
H	L	24H
H	H	25H
L	H	26H

Table 5-1

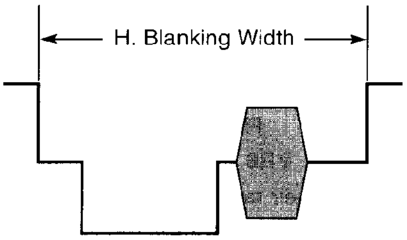


Fig. 5-14

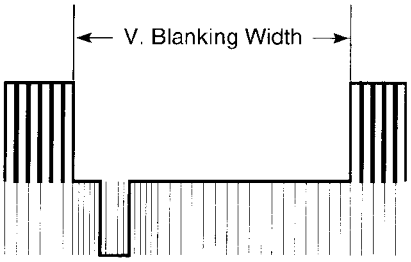


Fig. 5-15

(13) SC Lock Adjustment

Test Point: TP6 (SC LOCK) Sync/Encoder Board
Adjust: CT1 (SC LOCK) Sync/Encoder Board

- Supply the Black Burst signal or Color Signal to the Gen-Lock Input Connector of the Camera from the Test Signal Generator or the Special Effects Generator.
- Connect the Oscilloscope to TP6.
- Adjust CT1 to obtain 2.3 ± 0.1 V as shown in Fig. 5-16.

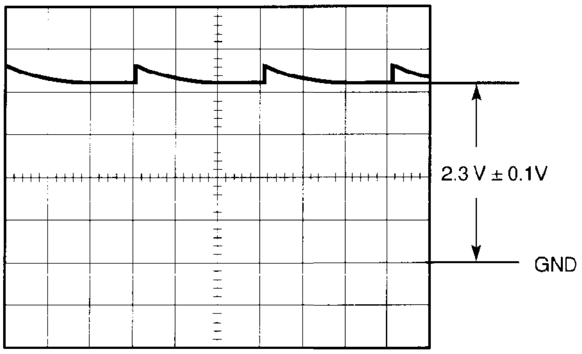


Fig. 5-16

- Disconnect the Black Burst signal or Color Signal from the Gen-Lock Input Connector of the Camera.

■ Drive Board Adjustment

(14) SC Lock Adjustment

Test Point: TP8 (PLL) Drive Board
Adjust: L1 (PLL) Drive Board

- Connect the Digital Voltmeter to TP8.
- Adjust CT1 to obtain 2.5 ± 0.05 V.

(15) VSUB Adjustment

Test Point:	**TP4 (R VSUB)**	**Drive Board**
	TP5 (G VSUB)	**Drive Board**
	TP6 (B VSUB)	**Drive Board**
Adjust:	**VR4 (R VSUB)**	**Drive Board**
	VR5 (G VSUB)	**Drive Board**
	VR6 (B VSUB)	**Drive Board**

- Connect the Oscilloscope to TP5.
- Trigger the Oscilloscope at V-rate.
- Adjust VR5 to obtain same voltage (within ± 0.05V) to the voltage indicated by label on the Flexible Board between the Drive Board and the Head Optical Ass'y as shown in Fig. 5-17.
- Change the connection of the Oscilloscope to TP4.
- Adjust VR4 to obtain same voltage (within ± 0.05V) to the voltage indicated by label on the Flexible Board between the Drive Board and the Head Optical Ass'y as shown in Fig. 5-17.

- Change the connection of the Oscilloscope to TP6.
- Adjust VR6 to obtain same voltage (within ± 0.05V) to the voltage indicated by label on the Flexible Board between the Drive Board and the Head Optical Ass'y as shown in Fig. 5-17.

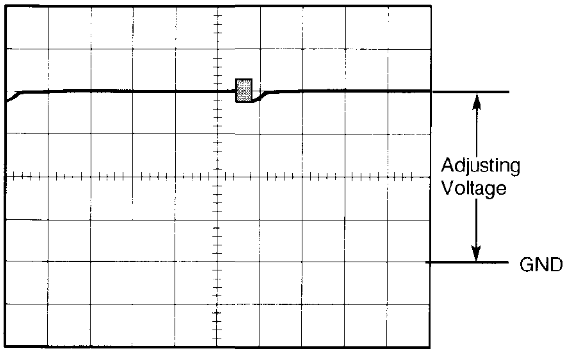


Fig. 5-17

(16) ØR DC Voltage Adjustment

Test Point:	**TP1 (R XRG)**	**Drive Board**
	TP2 (G XRG)	**Drive Board**
	TP3 (B XRG)	**Drive Board**
Adjust:	**VR1 (R XRG)**	**Drive Board**
	VR2 (G XRG)	**Drive Board**
	VR3 (B XRG)	**Drive Board**

- Connect the Oscilloscope to TP2.
- Adjust VR2 to obtain 2.0 ± 0.1V as shown in Fig. 5-18.
- Change the connection of the Oscilloscope to TP1.
- Adjust VR1 to obtain 2.0 ± 0.1V as shown in Fig. 5-18.
- Change the connection of the Oscilloscope to TP3.
- Adjust VR3 to obtain 2.0 ± 0.1V as shown in Fig. 5-18.

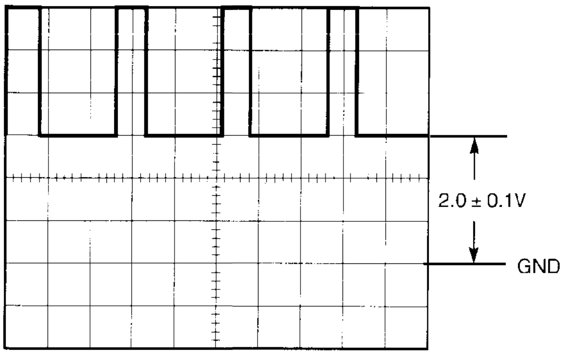


Fig. 5-18

■ Preamp Board Adjustment

(17) White Clip Adjustment

Test Point:	**TP102 (R OUT)**	**Preamp. Board**
	TP202 (G OUT)	**Preamp. Board**
	TP302 (B OUT)	**Preamp. Board**
Adjust:	**VR102 (R WHITE CLIP)**	**Preamp. Board**
	VR202 (G WHITE CLIP)	**Preamp. Board**
	VR302 (B WHITE CLIP)	**Preamp. Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the CH1 of the Oscilloscope to TP202 and CH2 to TP102.
- Open the Lens Iris to saturating the signal at TP202.
- Adjust the Vertical Level Control of the CH2 of the Oscilloscope so that the cross point of the G signal at TP202 becomes same level at that cross point of the R signal at TP102 as shown in Fig. 5-19.
- Adjust VR102 so that the Clip level of TP102 and saturation level of TP202 become coincide as shown in Fig. 5-20.
- Change connection of the CH2 of the Oscilloscope to TP302.
- Open the Lens Iris to saturating the signal at TP202.
- Adjust the Vertical Level Control of the CH2 of the Oscilloscope so that the cross point of the G signal at TP302 becomes same level at that cross point of the B signal at TP302 as shown in Fig. 5-19.
- Adjust VR302 so that the Clip level of TP302 and saturation level of TP302 become coincide as shown in Fig. 5-20.

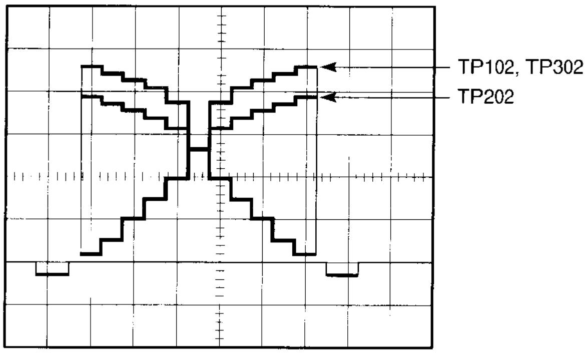


Fig. 5-19

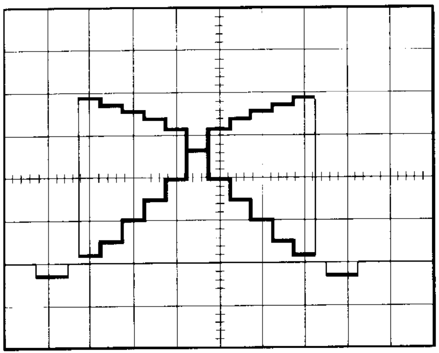


Fig. 5-20

- Confirm the colouration when fully open the Lens Iris.
- If Camera has colouration on the Video Monitor, adjust the VR102, VR202 and VR302 becomes no colouration on the Video monitor.

(18) Frequency Response Adjustment

Test Point:	**TP102 (R OUT)**	**Preamp. Board**
	TP202 (G OUT)	**Preamp. Board**
	TP302 (B OUT)	**Preamp. Board**
Adjust:	**CT101 (R FREQ-1)**	**Preamp. Board**
	CT201 (G FREQ-1)	**Preamp. Board**
	CT301 (B FREQ-1)	**Preamp. Board**

- Aim the Camera at the In-mega Chart.
- Connect the Oscilloscope to TP202.
- Expand the 0.5 MHz waveform of the In-mega Cycle chart using delayed sweep mode of the Oscilloscope.
- Adjust CT201 so that decay edge and rise edge of the 0.5 MHz signal becomes right angle (no curl and no overshoot) as shown in Fig. 5-21.
- Change the connection of the Oscilloscope to TP102.
- Expand the 0.5 MHz waveform of the In-mega Cycle chart using delayed sweep mode of the Oscilloscope.
- Adjust CT101 so that decay edge and rise edge of the 0.5 MHz signal becomes right angle (no curl and no overshoot) as shown in Fig. 5-21.
- Change the connection of the Oscilloscope to TP302.
- Expand the 0.5 MHz waveform of the In-mega Cycle chart using delayed sweep mode of the Oscilloscope.
- Adjust CT301 so that decay edge and rise edge of the 0.5 MHz signal becomes right angle (no curl and no overshoot) as shown in Fig. 5-21.

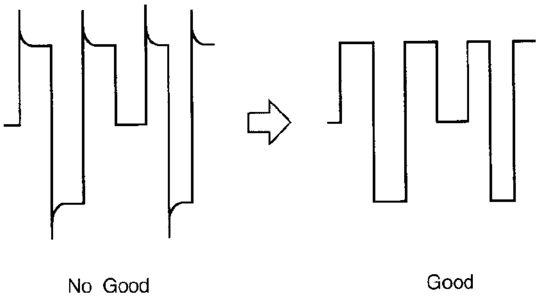


Fig. 5-21

(19) DC BIAS Adjustment

Test Point:	**TP102 (R OUT)**	**Preamp. Board**
	TP202 (G OUT)	**Preamp. Board**
	TP302 (B OUT)	**Preamp. Board**
Adjust:	**VR101 (R DC BIAS)**	**Preamp. Board**
	VR201 (G DC BIAS)	**Preamp. Board**
	VR301 (B DC BIAS)	**Preamp. Board**

- Open the Lens Iris little.
- Connect the Oscilloscope to TP202.
- Trigger the Oscilloscope at H-rate and DC mode.
- Adjust VR201 so that the DC components on the OB section becomes 0V as shown in Fig. 5-22.
- Change the connection of the Oscilloscope to TP102.
- Adjust VR101 so that the DC components on the OB section becomes 0V as shown in Fig. 5-22.
- Change the connection of the Oscilloscope to TP302.
- Adjust VR301 so that the DC components on the OB section becomes 0V as shown in Fig. 5-22.

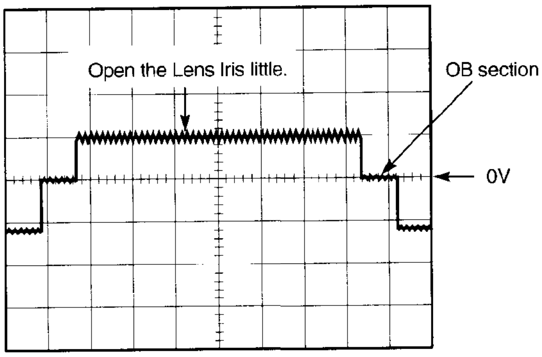


Fig. 5-22

○ IMPORTANT NOTICE

■ **Before start to adjust the Preprocess Board, switches and controls should be set as follows, unless otherwise specified.**

(Front)

Lens Iris Selection Switch	NOR

(Right Side viewed from front)

High Gain Selection Switch	LOW (0dB)
White Balance Selection Switch	AWC PRESET
Colour Bar/Night Eye/Camera Selection Switch	CAM
Filter Selection Wheel	1 (3200°K)

(Mother Board)

Back Light Compensation Switch (SW11)	OFF
Scene File Selection Switch (SW10)	USER A
Clean DNR Selection Switch (SW9)	OFF
User Set Switch (SW2)	OFF
High Light Chroma Switch (SW3)	OFF
Detail Level Selection Switch (SW4)	OFF
Lens Iris Control (VR4)	Mechanical Center
Total Pedestal Level Control (VR3)	Mechanical Center

■ **Before start to adjust the Preprocess Board, set the Menu as follows, unless otherwise specified.**

- Set the User Set Switch to 1 or 2 position so that the Menu should be displayed on the Viewfinder or Video Monitor.
- Select the page 8 (COMP) by the Page Switch (SW8) on the Mother Board, the Menu as shown in Table 5-2 should be displayed on the Viewfinder or Video Monitor.

```
USER A(COMP)        *1    ( 0DB)
NO.8 (.35-.55)      CURR   NOW

→* GAMMA(NOR)       .45    .45
 * GAMMA(SHTR)      .45    .45
 * KNEE POINT       98     98%
 * WHITE CLIP       110    110%
   FLARE R          0      0
   FLARE G          0      0
   FLARE B          0      0
   B STRETCH        OFF    OFF
 # BLACK SHD        ON     ON
 # WHITE SHD        OFF    OFF
```

Table 5-2

- Select the "KNEE POINT" position by the Item/Noise Suppress Switch (SW7) on the Mother Board as shown in Table 5-3.
- Set the "KNEE POINT" to OFF by the Up/Zone Switch (SW6) on the Mother Board as shown in Table 5-3.

```
USER A(COMP)        *1    ( 0DB)
NO.8 (.35-.55)      CURR   NOW

  * GAMMA(NOR)      .45    .45
  * GAMMA(SHTR)     .45    .45
→* KNEE POINT       98     OFF
  * WHITE CLIP      110    110%
    FLARE R         0      0
    FLARE G         0      0
    FLARE B         0      0
    B STRETCH       OFF    OFF
  # BLACK SHD       ON     ON
  # WHITE SHD       OFF    OFF
```

Table 5-3

- Confirm that the WHITE CLIP should be set at 110% as shown in Table 5-3.
- Set the User Set Switch to OFF position.

■ Preprocess Board Adjustment

(20) Iris Adjustment

Test Point:	**TP201 (G IN)**	**Preamp. Board**
Adjust:	**Lens Iris**	**Camera**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP201.
- Adjust the Lens Iris (MAN) so that the signal level becomes 180 ± 5 mV as shown in Fig. 5-23.

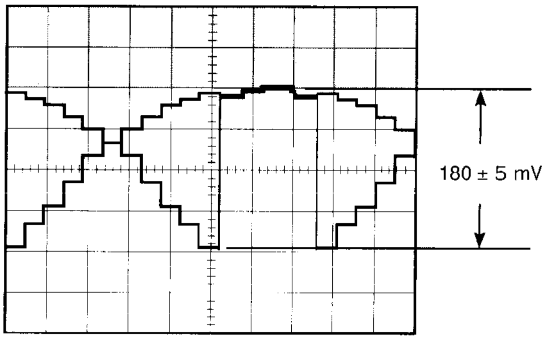


Fig. 5-23

(21) Pulse Cancel Coarse Adjustment

Test Point:	**TP102 (R PREVIDEO-1)**	**Preprocess Board**
	TP302 (G PREVIDEO-1)	**Preprocess Board**
	TP502 (B PREVIDEO-1)	**Preprocess Board**
Adjust:	**VR109 (R PUL CAN)**	**Preprocess Board**
	VR309 (G PUL CAN)	**Preprocess Board**
	VR509 (B PUL CAN)	**Preprocess Board**

- Cap on the Lens.
- Connect the Oscilloscope to TP302.

- Adjust the VR309 so that the signal becomes flat as shown in Fig. 5-24.
- Change the connection of the Oscilloscope to TP102.
- Adjust the VR109 so that the signal becomes flat as shown in Fig. 5-24.
- Change the connection of the Oscilloscope to TP502.
- Adjust the VR509 so that the signal becomes flat as shown in Fig. 5-24.

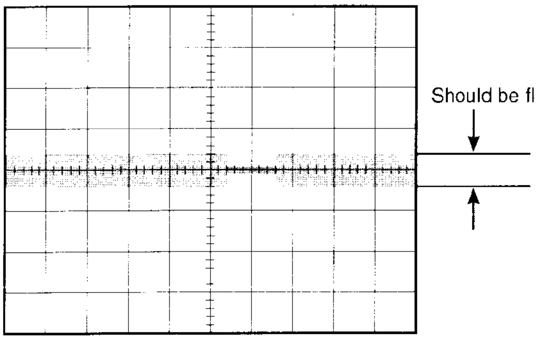


Fig. 5-24

(22) Input Gain Adjustment

Test Point:	**TP102 (R PREVIDEO-1)**	**Preprocess Board**
	TP302 (G PREVIDEO-1)	**Preprocess Board**
	TP502 (B PREVIDEO-1)	**Preprocess Board**
Adjust:	**VR101 (R INPUT GAIN)**	**Preprocess Board**
	VR301 (G INPUT GAIN)	**Preprocess Board**
	VR501 (B INPUT GAIN)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP302.
- Adjust the VR301 so that the G signal becomes 600 ± 10 mV as shown in Fig. 5-25.
- Change the connection of the Oscilloscope to TP102.
- Adjust the VR101 so that the R signal becomes 600 ± 10 mV as shown in Fig. 5-25.
- Change the connection of the Oscilloscope to TP502.
- Adjust the VR501 so that the R signal becomes 600 ± 10 mV as shown in Fig. 5-25.

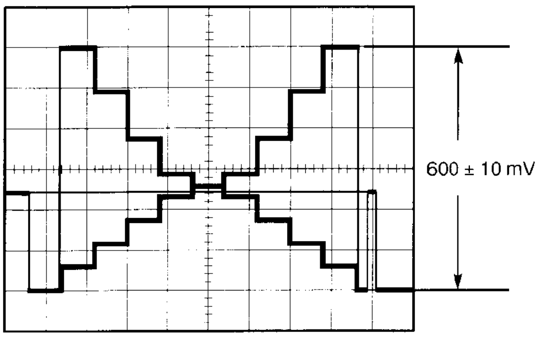


Fig. 5-25

(23) Gain Adjustment

Test Point:	**TP103 (R PREVIDEO-2)**	**Preprocess Board**
	TP303 (G PREVIDEO-2)	**Preprocess Board**
	TP503 (B PREVIDEO-2)	**Preprocess Board**
Adjust:	**VR104 (R GAIN)**	**Preprocess Board**
	VR304 (G GAIN)	**Preprocess Board**
	VR504 (B GAIN)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP303.
- Adjust the VR304 so that the G signal becomes 600 ± 10 mV as shown in Fig. 5-26.
- Change the connection of the Oscilloscope to TP103.
- Adjust the VR104 so that the R signal becomes 600 ± 10 mV as shown in Fig. 5-26.
- Change the connection of the Oscilloscope to TP503.
- Adjust the VR504 so that the R signal becomes 600 ± 10 mV as shown in Fig. 5-26.

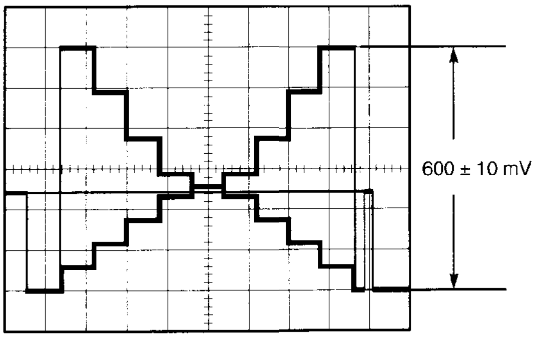


Fig. 5-26

(24) Pedestal Coarse Adjustment

Test Point:	**TP104 (R GAMMA-1)**	**Preprocess Board**
	TP304 (G GAMMA-1)	**Preprocess Board**
	TP504 (B GAMMA-1)	**Preprocess Board**
Adjust:	**VR108 (R PED)**	**Preprocess Board**
	VR308 (G PED)	**Preprocess Board**
	VR508 (B PED)	**Preprocess Board**

- Cap on the Lens.
- Connect the Oscilloscope to TP304.
- Adjust the VR308 so that the G signal becomes 35 ± 1 mV as shown in Fig. 5-27.
- Change the connection of the Oscilloscope to TP104.
- Adjust the VR108 so that the R signal becomes 32 ± 1 mV as shown in Fig. 5-27.
- Change the connection of the Oscilloscope to TP504.
- Adjust the VR508 so that the R signal becomes 32 ± 1 mV as shown in Fig. 5-27.

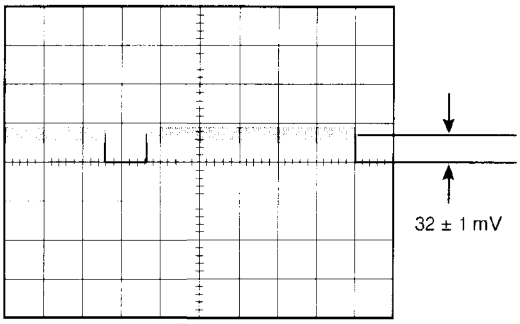


Fig. 5-27

(25) Gamma 1 Adjustment

Test Point:	**TP106 (R OUT)**	**Preprocess Board**
	TP306 (G OUT)	**Preprocess Board**
	TP506 (B OUT)	**Preprocess Board**
Adjust:	**VR106 (R GAMMA)**	**Preprocess Board**
	VR306 (G GAMMA)	**Preprocess Board**
	VR506 (B GAMMA)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP306.
- Adjust the VR306 so that the Gamma signal becomes minimum as shown in Fig. 5-28.
- Change the connection of the Oscilloscope to TP106.
- Adjust the VR106 so that the Gamma signal becomes minimum as shown in Fig. 5-28.
- Change the connection of the Oscilloscope to TP506.
- Adjust the VR506 so that the Gamma signal becomes minimum as shown in Fig. 5-28.

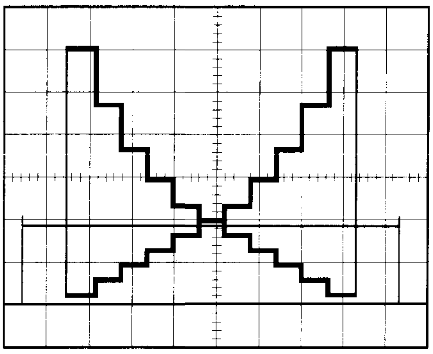


Fig. 5-28

(26) Gamma Output Adjustment

Test Point:	**TP106 (R OUT)**	**Preprocess Board**
	TP306 (G OUT)	**Preprocess Board**
	TP506 (B OUT)	**Preprocess Board**
Adjust:	**VR107 (R OUTPUT GAIN)**	**Preprocess Board**
	VR307 (G OUTPUT GAIN)	**Preprocess Board**
	VR507 (B OUTPUT GAIN)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP306.
- Adjust the VR307 so that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-29.
- Change the connection of the Oscilloscope to TP106.
- Adjust the VR107 so that the output signal becomes 1.4Vp-p ± 10 mV as shown in Fig. 5-29.
- Change the connection of the Oscilloscope to TP506.
- Adjust the VR507 so that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-29.

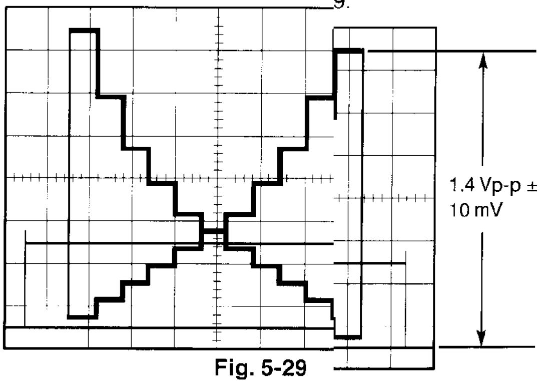


Fig. 5-29

(27) Gamma 2 Adjustment

Test Point:	**TP106 (R OUT)**	**Preprocess Board**
	TP306 (G OUT)	**Preprocess Board**
	TP506 (B OUT)	**Preprocess Board**
Adjust:	**VR106 (R GAMMA)**	**Preprocess Board**
	VR306 (G GAMMA)	**Preprocess Board**
	VR506 (B GAMMA)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP306.
- Adjust the VR306 so that the Gamma signal becomes maximum as shown in Fig. 5-30.
- Change the connection of the Oscilloscope to TP106.
- Adjust the VR106 so that the Gamma signal becomes maximum as shown in Fig. 5-30.
- Change the connection of the Oscilloscope to TP506.
- Adjust the VR506 so that the Gamma signal becomes maximum as shown in Fig. 5-30.

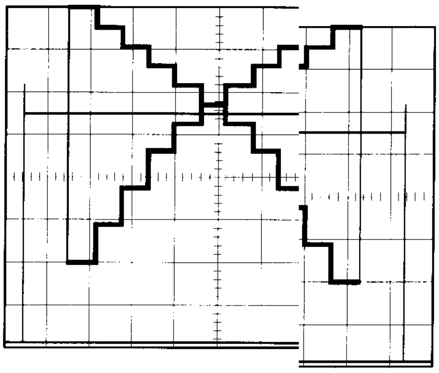


Fig. 5-30

(28) Gamma Balance Adjustment

Test Point:	**TP106 (R OUT)**	**Preprocess Board**
	TP306 (G OUT)	**Preprocess Board**
	TP506 (B OUT)	**Preprocess Board**
Adjust:	**VR105 (R GAMMA BAL)**	**Preprocess Board**
	VR305 (G GAMMA BAL)	**Preprocess Board**
	VR505 (B GAMMA BAL)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP306.
- Adjust the VR305 so that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-31.
- Change the connection of the Oscilloscope to TP106.
- Adjust the VR105 so that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-31.
- Change the connection of the Oscilloscope to TP506.
- Adjust the VR505 so that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-31.

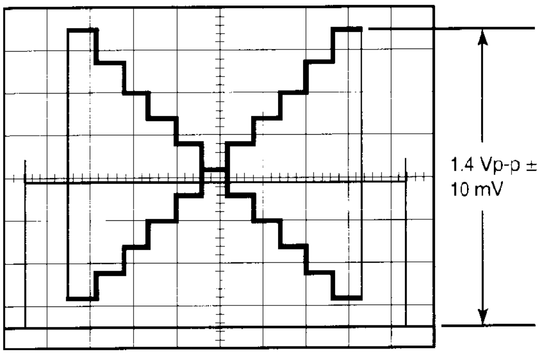


Fig. 5-31

(29) Gamma Balance Confirmation

Test Point:	**TP106 (R OUT)**	**Preprocess Board**
	TP306 (G OUT)	**Preprocess Board**
	TP506 (B OUT)	**Preprocess Board**
Adjust:	**VR106 (R GAMMA)**	**Preprocess Board**
	VR306 (G GAMMA)	**Preprocess Board**
	VR506 (B GAMMA)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Oscilloscope to TP306.
- Adjust the VR306 from maximum to minimum, then confirm that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-32.
- Change the connection of the Oscilloscope to TP106.
- Adjust the VR106 from maximum to minimum, then confirm that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-32.
- Change the connection of the Oscilloscope to TP506.
- Adjust the VR506 from maximum to minimum, then confirm that the output signal becomes 1.4 Vp-p ± 10 mV as shown in Fig. 5-32.
- Repeat adjust from the Adjustment Steps (20) to (23) if the output signal levels are changed by turning of VRs.
- After completion of confirmation, set VR106, VR306 and VR506 at their mechanical center.

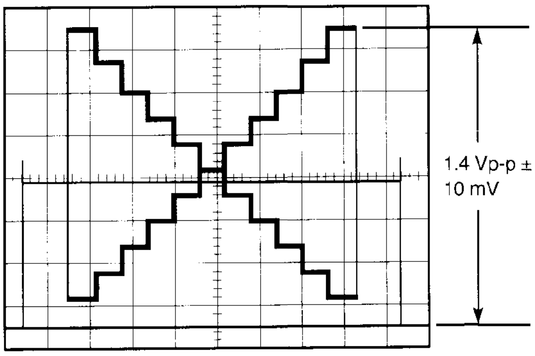


Fig. 5-32

(30) Preprocess Output Adjustment

Test Point:	**Video Output Connector**	**Camera Adaptor**
Adjust:	**VR101 (R INPUT GAIN)**	**Preprocess Board**
	VR108 (R PED)	**Preprocess Board**
	VR109 (R PUL CAN)	**Preprocess Board**
	VR106 (R GAMMA)	**Preprocess Board**
	VR301 (G INPUT GAIN)	**Preprocess Board**
	VR308 (G PED)	**Preprocess Board**
	VR309 (G PUL CAN)	**Preprocess Board**
	VR306 (G GAMMA)	**Preprocess Board**
	VR501 (B INPUT GAIN)	**Preprocess Board**
	VR508 (B PED)	**Preprocess Board**
	VR509 (B PUL CAN)	**Preprocess Board**
	VR506 (B GAMMA)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Adjust VR306, VR106 and VR506 so that the Gamma Cross Point level becomes 400 ± 7 mV as shown in Fig. 5-33.
- Adjust VR301, VR101 and VR501 so that the Video signal level becomes 700 ± 7 mV as shown in Fig. 5-33.
- Cap on the Lens.
- Adjust VR308, VR108 and VR508 so that the Pedestal level becomes 32 ± 5 mV as shown in Fig. 5-34.
- Set the Colour Bar/Night Eye/Camera Selection Switch to the Night Eye position.
- Adjust VR309, VR109 and VR509 so that the Pedestal level becomes 32 ± 5 mV as shown in Fig. 5-34.

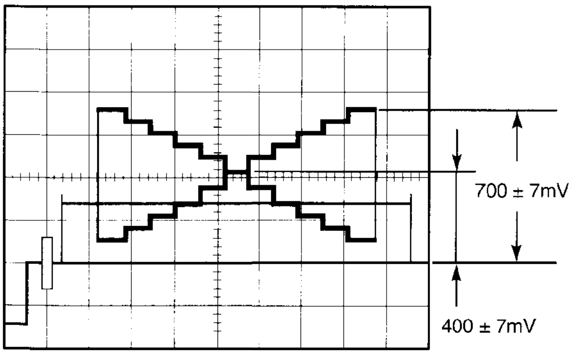


Fig. 5-33

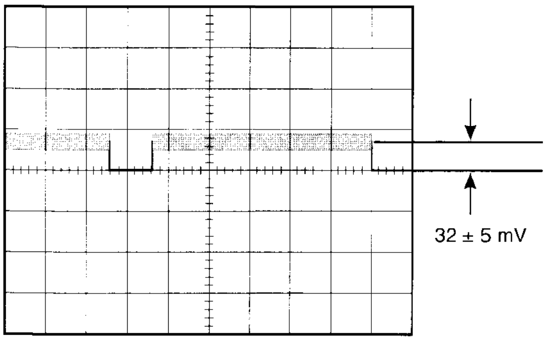


Fig. 5-34

(31) Shutter Pulse Cancel Adjustment

Test Point:	**Video Output Connector**	**Camera Adaptor**
Adjust:	**VR110 (R SHT PUL CAN)**	**Preprocess Board**
	VR310 (G SHT PUL CAN)	**Preprocess Board**
	VR510 (B SHT PUL CAN)	**Preprocess Board**

- Set the Gain Control of the Vectorscope to maximum.
- Set the Colour Bar/Night Eye/Camera Selection Switch to Night Eye position.
- Set the Electronic Shutter On/Off Switch to On position.
- Set the User Set Switch to 1 or 2 position so that the Menu should be displayed on the Viewfinder or Video Monitor.
- Set the User Set Switch to OFF position.
- Select the page 1 (IRIS•SHTR•GAIN) by the Page Switch (SW8) on the Mother Board, the Menu as shown in Table 5-4 should be displayed on the Viewfinder or Video Monitor.

```
USER A(IRIS•SHTR•GAIN)
NO.1
→  PEAK/AVG     P       I      A
   AREA               TOP  CUT
 # AUTO IRIS          ADJ  OFF
 # SHUTTER SW          ACTIVE
 # SHUTTER MODE         STEP
 # STEP                 1/100
 # SYNCHRO              60.5HZ
 # FLD/FRM              FIELD
 # GAIN SW             0/9/18DB
 # NIGHT EYE              HI
```

Table 5-4

- Select the "STEP" position by the Item/Noise Suppress Switch (SW7) on the Mother Board as shown in Table 5-5.
- Set the Shutter Speed to 1/500 by the Up/Zone Switch (SW6) on the Mother Board as shown in Table 5-5.

```
USER A(IRIS•SHTR•GAIN)
NO.1
   PEAK/AVG     P       I      A
   AREA               TOP  CUT
 # AUTO IRIS          ADJ  OFF
 # SHUTTER SW          ACTIVE
 # SHUTTER MODE         STEP
→# STEP                 1/500
 # SYNCHRO              60.5HZ
 # FLD/FRM              FIELD
 # GAIN SW             0/9/18DB
 # NIGHT EYE              HI
```

Table 5-5

- Adjust VR310, VR110 and VR510 so that the Vector positions at center of the Vectorscope as shown in Fig. 5-35.

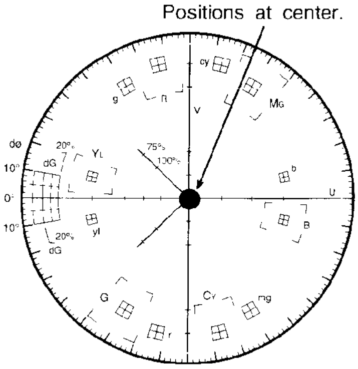


Fig. 5-35

- Set the Colour Bar/Night Eye/Camera Selection Switch to CAMERA position.
- Set the Electronic Shutter On/Off Switch to Off position.

(32) Knee Point Adjustment

Test Point:	**Video Output Connector**	**Camera Adaptor**
Adjust:	**VR111 (R KNEE POINT)**	**Preprocess Board**
	VR311 (G KNEE POINT)	**Preprocess Board**
	VR511 (B KNEE POINT)	**Preprocess Board**

- Aim the Camera at the Logarithmic Gray Scale Chart.
- Set the User Set Switch to 1 or 2 position so that the Menu should be displayed on the Viewfinder or Video Monitor.
- Select the page 8 (COMP) by the Page Switch (SW8) on the Mother Board, the Menu as shown in Table 5-6 should be displayed on the Viewfinder or Video Monitor.

USER A(COMP)	* 1	(0DB)
NO.8 (.35– .55)	CURR	NOW
→* GAMMA(NOR)	.45	.45
* GAMMA(SHTR)	.45	.45
* KNEE POINT	98	98%
* WHITE CLIP	110	110%
FLARE R	0	0
FLARE G	0	0
FLARE B	0	0
B STRETCH	OFF	OFF
# BLACK SHD	ON	ON
# WHITE SHD	OFF	OFF

Table 5-6

- Select the "KNEE POINT" position by the Item/Noise Suppress Switch (SW7) on the Mother Board as shown in Table 5-7.
- Set the "KNEE POINT" to 98% by the Down/Level Indicator Switch (SW5) on the Mother Board as shown in Table 5-7.

USER A(COMP)	* 1	(0DB)
NO.8 (.35– .55)	CURR	NOW
* GAMMA(NOR)	.45	.45
* GAMMA(SHTR)	.45	.45
→* KNEE POINT	98	98%
* WHITE CLIP	110	110%
FLARE R	0	0
FLARE G	0	0
FLARE B	0	0
B STRETCH	OFF	OFF
# BLACK SHD	ON	ON
# WHITE SHD	OFF	OFF

Table 5-7

- Confirm that the WHITE CLIP should be set at 110% as shown in Table 5-7.
- Set the User Set Switch to OFF position.
- Open the Lens Iris so that the starting point of the Knee level becomes 98%.
- Adjust the VR311 so that the Knee level becomes 98% as shown in Fig. 5-36.

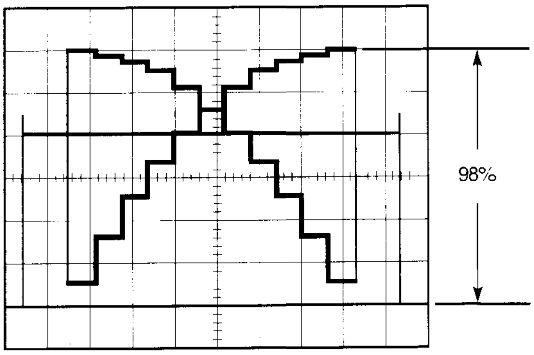


Fig. 5-36

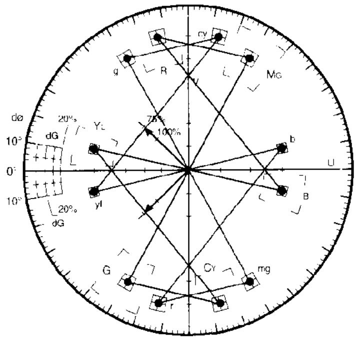


Fig. 5-37

(33) White Shading Balance Adjustment

Test Point:	**TP106 (R OUT)**	**Preprocess Board**
	TP306 (G OUT)	**Preprocess Board**
	TP506 (B OUT)	**Preprocess Board**
Adjust:	**VR112 (R W SHD)**	**Preprocess Board**
	VR312 (G W SHD)	**Preprocess Board**
	VR512 (B W SHD)	**Preprocess Board**

- Cap on the lens.
- Set the User Set Switch to 1 or 2 position so that the Menu should be displayed on the Viewfinder or Video Monitor.
- Select the page 8 (COMP) by the Page Switch (SW8) on the Mother Board, the Menu as shown in Table 5-8 should be displayed on the Viewfinder or Video Monitor.

USER A(COMP)	* 1	(0DB)
NO.8 (.35– .55)	CURR	NOW
→* GAMMA(NOR)	.45	.45
* GAMMA(SHTR)	.45	.45
* KNEE POINT	98	98%
* WHITE CLIP	110	110%
FLARE R	0	0
FLARE G	0	0
FLARE B	0	0
B STRETCH	OFF	OFF
# BLACK SHD	ON	ON
# WHITE SHD	OFF	OFF

Table 5-8

- Set the "WHITE SHD" to ON by the ITEM/Noise Suppress Switch (SW7) on the Mother Board as shown in Table 5-9.

```
USER A(COMP)      *1   ( 0DB)
NO.8 (.35– .55)   CURR  NOW

  * GAMMA(NOR)     .45   .45
  * GAMMA(SHTR)    .45   .45
  * KNEE POINT     98    98%
  * WHITE CLIP    110   110%
    FLARE R         0     0
    FLARE G         0     0
    FLARE B         0     0
    B STRETCH     OFF   OFF
  # BLACK SHD      ON    ON
→ # WHITE SHD      ON    ON
```

Table 5-9

- Set the White Shading Data to the TEST mode by press Auto White/Auto Black Set Switch (SW1) on the Front Panel to the AWC side while pressing the Data Input Switch (SW1) on the System Control Board.
- Connect the Oscilloscope to TP306.
- Adjust the VR312 so that the waveform becomes flat as shown in Fig. 5-38.
- Change the connection of the Oscilloscope to TP106.
- Adjust the VR112 so that the waveform becomes flat as shown in Fig. 5-38.
- Change the connection of the Oscilloscope to TP506.
- Adjust the VR512 so that the waveform becomes flat as shown in Fig. 5-38.

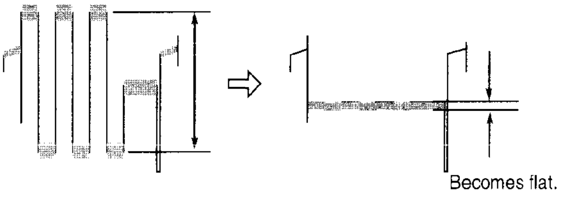


Fig. 5-38

- After completion of adjustment, press the Data Input Switch (SW1), set the "WHITE SHD" to OFF by the Down/Level Indicator Switch (SW5).
- Set the User Set Switch to OFF position.

(34) Frequency Response Adjustment

Test Point:	**TP104 (R GAMMA-1)**	**Preprocess Board**
	TP304 (G GAMMA-1)	**Preprocess Board**
	TP504 (B GAMMA-1)	**Preprocess Board**
Adjust:	**CT101 (R FREQ-2)**	**Preprocess Board**
	CT301 (G FREQ-2)	**Preprocess Board**
	CT501 (B FREQ-2)	**Preprocess Board**

- Aim the Camera at the In-mega Chart.
- Connect the Oscilloscope to TP304.
- Trigger the Oscilloscope at H-rate.
- Adjust the CT301 so that the waveform from 0.5 MHz to 8 MHz becomes flat as much as possible as shown in Fig. 5-39.
- Change the connection of the Oscilloscope to TP104.
- Adjust the CT101 so that the waveform from 0.5 MHz to 8 MHz becomes flat as much as possible as shown in Fig. 5-39.
- Change the connection of the Oscilloscope to TP504.
- Adjust the CT501 so that the waveform from 0.5 MHz to 8 MHz becomes flat as much as possible as shown in Fig. 5-39.

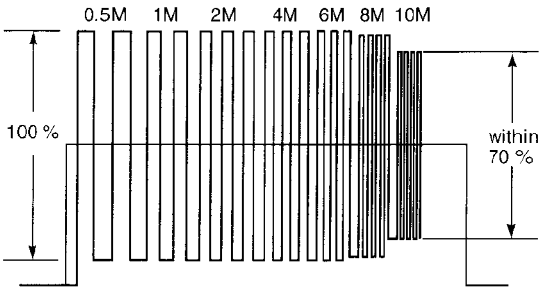


Fig. 5-39

(35) Auto Iris Adjustment

Test Point:	**Video Output Connector**	**Camera Adaptor**
Adjust:	**VR4 (IRIS)**	**Mother Board**

- Set the Filter Selection Wheel to 1 (3200°K) position.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Set the High Gain Selection Switch (SW1) on the Side SW Board to LOW position.
- Set the Electronic Shutter On/Off Switch (SW12) on the Mother Board to OFF position.
- Set the Iris Control Selection Switch on the Lens to the "AUTO" position.
- Set the Scene File Selection Switch (SW10) on the Mother Board to the USER A position.
- Set the User Set Switch to 1 or 2 position.
- Select the page 1 (IRIS•SHTR•GAIN) by the Page Switch (SW8) on the Mother Board.

- Select the "PEAK/AVG" position by the Item/Noise Suppress Switch (SW7) on the Mother Board, the Menu as shown in Table 5-10 should be displayed on the Viewfinder or Video Monitor.

```
USER A(IRIS•SHTR•GAIN)
NO.1
→  PEAK/AVG    P    I       A
   AREA             TOP  CUT
 # AUTO IRIS        ADJ  OFF
 # SHUTTER SW          ACTIVE
 # SHUTTER MODE        STEP
 # STEP                1/100
 # SYNCHRO              60.5HZ
 # FLD/FRM             FIELD
 # GAIN SW             0/9/18DB
 # NIGHT EYE              HI
```

Table 5-10

- Set the PEAK/AVG to the center between "P" and "A" characters by the Up/Zone Switch (SW6) on the Mother Board as shown in Table 5-11.

```
USER A(IRIS•SHTR•GAIN)
NO.1
→  PEAK/AVG    P    I       A
   AREA             TOP  CUT
 # AUTO IRIS        ADJ  OFF
 # SHUTTER SW          ACTIVE
 # SHUTTER MODE        STEP
 # STEP                1/100
 # SYNCHRO              60.5HZ
 # FLD/FRM             FIELD
 # GAIN SW             0/9/18DB
 # NIGHT EYE              HI
```

Table 5-11

- Set the User Set Switch (SW2) to OFF position.
- Adjust VR4 so that the Video signal level becomes 700 mVp-p.

(36) Auto Black SHD Confirmation

Test Point: Video Output Connector **Camera Adaptor**

Adjust: VR4 (IRIS) **Mother Board**

- Set the Filter Selection Wheel to the 4 (CLOSE) position.
- Set the Scene File Selection Switch (SW10) on the Mother Board to the USER A position.
- Set the User Set Switch (SW2) to 1 or 2 position.
- Select the page 8 (COMP) by the Page Switch (SW8) on the Mother Board
- Select the "BLACK SHD" position by the Item/Noise Suppress Switch (SW7) on the Mother Board, the Menu as shown in Table 5-12 should be displayed on the Viewfinder or Video Monitor.

```
USER A(COMP)        *1    ( 0DB)
NO.8 (.35-.55)      CURR   NOW
   * GAMMA(NOR)      .45    .45
   * GAMMA(SHTR)     .45    .45
   * KNEE POINT      98     98%
   * WHITE CLIP      110    110%
     FLARE R         0      0
     FLARE G         0      0
     FLARE B         0      0
     B STRETCH       OFF    OFF
 → # BLACK SHD       ON     ON
   # WHITE SHD       OFF    OFF
```

Table 5-12

- Confirm that the BLACK SHD should be set the ON position.
- Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board and confirm the Data of "BLACK SHD" is changing to the "ACTIVE", blinking the Auto Warning Indicator (Green) on the Viewfinder screen.
- Confirm completion of the ABC set and Data of the BLACK SHD is changing to ON.
- Set the User Set Switch (SW2) to the OFF position.

(37) Character Position Adjustment

Test Point: Electronic Viewfinder

Adjust: CT1 (CHARACTER POSI)

System Control Board

- Set the Colour Bar/Night Eye/Camera Selection Switch (SW3) on the Side SW Board to the "BAR" position.
- Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board while pressing the Check Switch (SW14) on the Mother Board, the calender should be displayed on the Viewfinder or Video Monitor.
- Adjust CT1 so that the Character positions in between the colour bar as shown in Fig. 5-40.

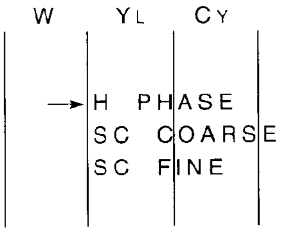


Fig. 5-40

(38) Battery Warning Adjustment

Test Point:	**Pins 10-12 (12V IN)**	**Power Board**
	Pins 25-33 (GND)	**Power Board**
Adjust:	**VR5 (BATT)**	**Mother Board**

Observe: **Electronic Viewfinder**

- Connect the Digital Voltmeter between the pins 10-12 and pins 25-33 of CN1 on the Power Board.
- Adjust the output control of the DC Power Supply Unit so that the DC voltage at the pins 10-12 becomes + 10.6 V.
- Turn VR5 fully clockwise and turn it back slowly and stop it when the Battery Warning Indicator starts to blinking in the Electronic Viewfinder.

(39) Auto Black Control Adjustment

Test Point:	**SW1 (DATA INPUT SWITCH)**	**System Control Board**
	SW8 (PAGE SWITCH)	**Mother Board**
	SW6 (UP/ZOOM SWITCH)	**Mother Board**
	SW5 (DOWN/LEVEL INDICATOR SWITCH)	**Mother Board**
Observe:	**Monitor Output Connector**	**Camera**

- Do not preset the System Control Board.
- Set the Electronic Shutter On/Off Switch (SW12) on the Mother Board to the OFF position.
- Set the High Gain Selection Switch (SW1) on the Side SW Board to the LOW position.
- Set the White Balance Selection Switch (SW2) on the Side SW Board to the AWC A position.
- Set the Iris Control Selection Switch on the Lens to the "MAN" (Manual) position.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Adjust the Lens Iris so that the Video signal level becomes 630 mVp-p.
- Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the AWC side.
- Set the Filter Selection Wheel to the 4 (CLOSE) position.
- Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the ABC side while pressing the Check Switch (SW14) on the Mother Board.

<1> Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the ABC side while pressing the Data Input Switch (SW1) on the System Control Board and confirm the screen of the Electronic Viewfinder is changing to the ABC ADJ mode and the Table 5-13 should be displayed.

```
ABC  ADJ
PAGE  : SELECT        RCH
UP     : DATA +
DOWN : DATA -
```

← Channel to be setting.

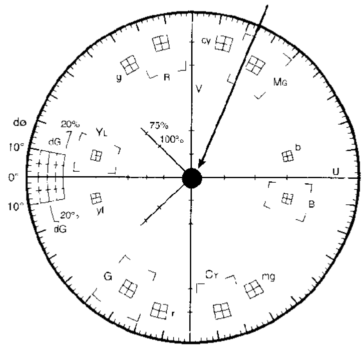
Table 5-13

<2> Set the R channel by the SW8.

<3> Adjust the SW6 and SW5 so that the Vector positions at the center of the Vectorscope as shown in Fig. 5-41.

<4> Set the B channel by the SW8.

<5> Adjust the SW6 and SW5 so that the Vector positions at the center of the Vectorscope as shown in Fig. 5-41.



Positions at center.

Fig. 5-41

<6> After completion of adjustment, press the Data Input Switch (SW1) once.

<7> Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board more than 3 seconds.

<8> Repeat adjust from the step <1> if the Auto Black Control Adjustment is not sufficient.

(40) Auto White Control Adjustment

Test Point:	**SW1 (DATA INPUT SWITCH)**	**System Control Board**
	SW8 (PAGE SWITCH)	**Mother Board**
	SW6 (UP/ZOOM SWITCH)	**Mother Board**
	SW5 (DOWN/LEVEL INDICATOR SWITCH)	**Mother Board**
Observe:	**Monitor Output Connector**	**Camera**

- Do not preset the System Control Board.
- Set the Electronic Shutter On/Off Switch (SW12) on the Mother Board to the OFF position.
- Set the High Gain Selection Switch (SW1) on the Side SW Board to the LOW position.

- Set the White Balance Selection Switch (SW2) to the ATW A position.
- Set the Filter Selection Wheel to the 1 (3200°K) position.
- Set the Iris Control Selection Switch on the Lens to the "MAN" (Manual) position.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Adjust the Lens Iris so that the Video signal level becomes 630 mVp-p.
- Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the AWC side.

<1> Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the AWC side while pressing the Data Input Switch (SW1) on the System Control Board and confirm the screen of the Electronic Viewfinder is changing to the AWC ADJ mode and the Table 5-14 should be displayed.

AWC ADJ
PAGE : SELECT RCH ← Channel to be setting.
UP : DATA +
DOWN : DATA –

Table 5-14

<2> Set the R channel by the SW8.

<3> Adjust the SW6 and SW5 so that the Vector positions at the center of the Vectorscope as shown in Fig. 5-42.

<4> Set the B channel by the SW8.

<5> Adjust the SW6 and SW5 so that the Vector positions at the center of the Vectorscope as shown in Fig. 5-42.

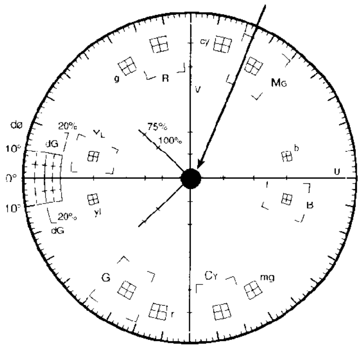

Positions at center.

Fig. 5-42

<6> After completion of adjustment, press the Data Input Switch (SW1) once.

<7> Set the Electronic Shutter On/Off Switch (SW12) and High Gain Selection Switch (SW1) according to Table 5-15, press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the AWC side while pressing the Recording Time Reset Switch (SW1) on the Mother Board.

Note: Keep the Video signal level for 630 mVp-p by the Lens Iris.

Colour Bar/ Night Eye/ Camera Selection Switch	High Gain Selection Switch	Menu Gain Switch (dB)	Gain (dB)	Electronic Shutter					
				OFF	1/100	1/250	1/500	1/1000	1/2000
CAM	LOW	0/9/18	0	–	1	2	3	4	5
CAM	LOW	-6/0/6	–6	6	7	8	9	10	11
CAM	MID	0/3/6	+3	12	13	14	15	16	17
CAM	MID	0/6/12	+6	18	19	20	21	22	23
CAM	MID	0/9/18	+9	24	25	26	27	28	29
CAM	HIGH	0/6/12	+12	30	31	32	33	34	35
CAM	HIGH	0/9/18	+18	36	37	38	39	40	41
CAM	HIGH	0/12/24	+24	42	43	44	45	46	47
N.E.	N.E.	–	N.E.	48	49	50	51	52	53

Table 5-15

■ Adjustment procedure of the Auto Scan by the Remote Control Box (RCB).

- Connect the RCB Cable between the Remote Control Extension Connector of the Remote Control Unit and the Remote Control Box Connector the left side of the WV-F565.
- Turn On the RCB Operation Switch on the Remote Control Box.
- Set the Iris Selection Switch on the Lens to the "AUTO" position and the Lens Iris Selection Switch (SW2) on the front SW Board to "–" position.

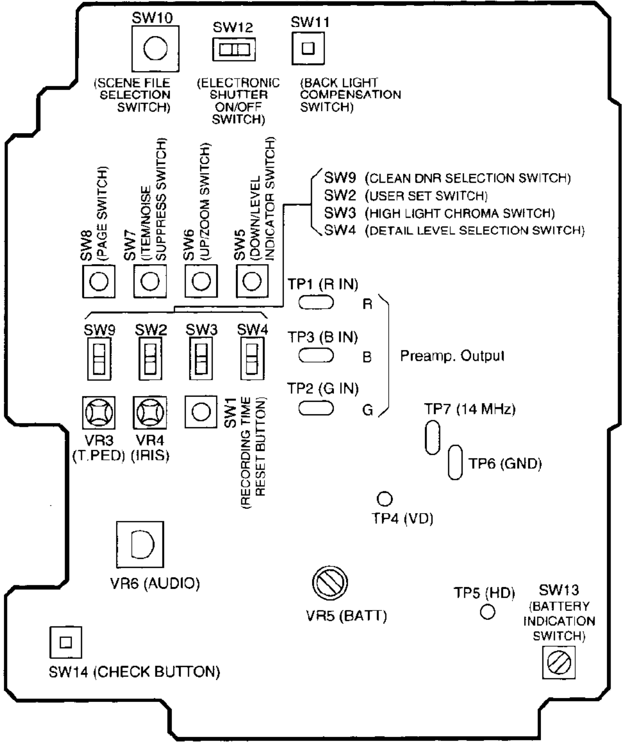
  Note: Keep the Video signal level for 630 mVp-p by the Lens Iris.
- Set the High Gain Selection Switch of the Remote Control Box to other than 0 dB or the Electronic Shutter Speed Selection Switch of the Remote Control Box to other than the OFF position.
- Press the Auto White/Auto Black Set Switch (SW1) on the Front SW Board to the AWC side while pressing the Recording Time Reset Switch (SW1) on the Mother Board.

  Auto scan starts automatically and all modes on the Table 5-13 should be done for approx. 2 minutes.

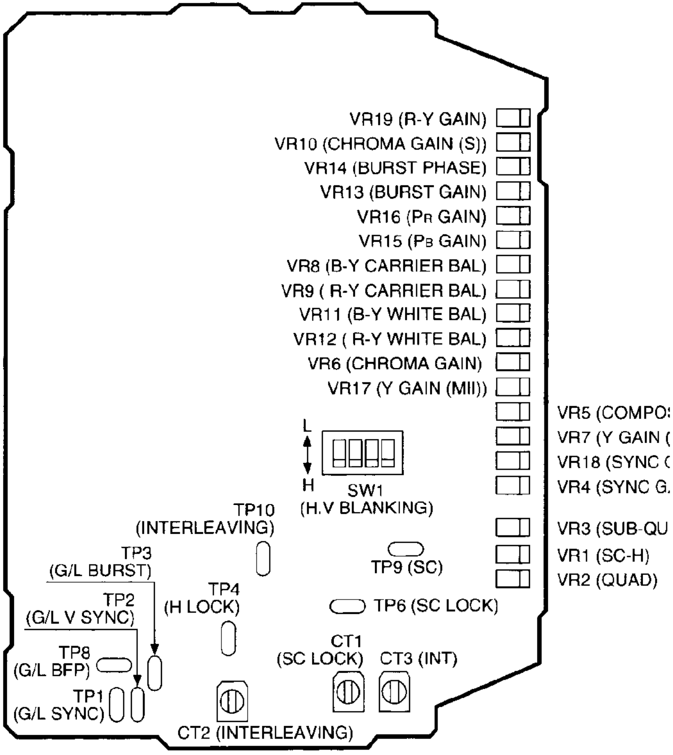
Note: If desire to stop the auto scanning, set the Colour Bar/Camera Selection Switch to the "BAR" position or turn Off the Operation Switch of the Remote Control Box.

LOCATION OF TEST POINT A

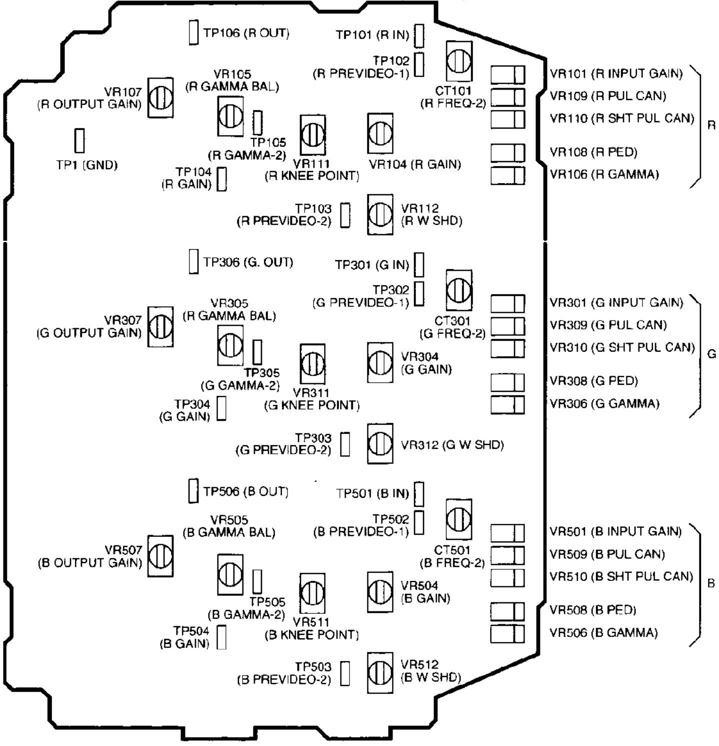
MOTHER BOARD (Pattern Side)


SW10
SW12
SW11
(SCENE FILE SELECTION SWITCH)
(ELECTRONIC SHUTTER ON/OFF SWITCH)
(BACK LIGHT COMPENSATION SWITCH)
SW8 (PAGE SWITCH)
SW7 (ITEM/NOISE SUPPRESS SWITCH)
SW6 (UP/ZOOM SWITCH)
SW5 (DOWN/LEVEL INDICATOR SWITCH)
SW9 (CLEAN DNR SELECTION SWITCH)
SW2 (USER SET SWITCH)
SW3 (HIGH LIGHT CHROMA SWITCH)
SW4 (DETAIL LEVEL SELECTION SWITCH)
TP1 (R IN)
R
TP3 (B IN)
B
Preamp. Output
TP2 (G IN)
G
SW9
SW2
SW3
SW4
SW1 (RECORDING TIME RESET BUTTON)
VR3 (T.PED)
VR4 (IRIS)
TP7 (14 MHz)
TP6 (GND)
TP4 (VD)
VR6 (AUDIO)
VR5 (BATT)
TP5 (HD)
SW13 (BATTERY INDICATION SWITCH)
SW14 (CHECK BUTTON)

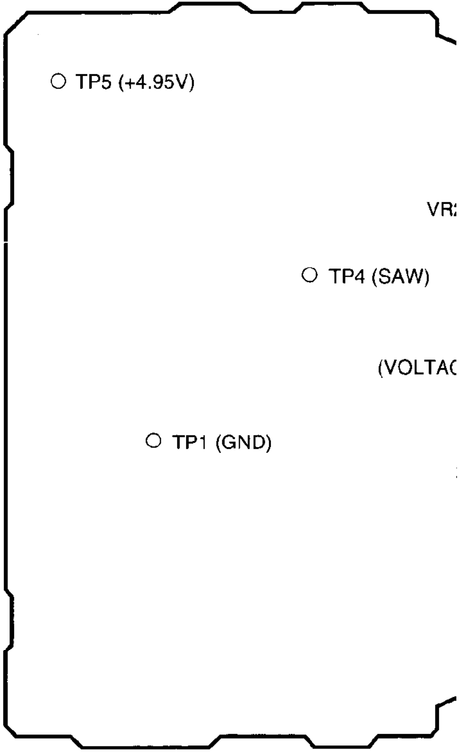
SYNC/ENCODER BOARD (Component Side)


VR19 (R-Y GAIN)
VR10 (CHROMA GAIN (S))
VR14 (BURST PHASE)
VR13 (BURST GAIN)
VR16 (PR GAIN)
VR15 (PB GAIN)
VR8 (B-Y CARRIER BAL)
VR9 (R-Y CARRIER BAL)
VR11 (B-Y WHITE BAL)
VR12 (R-Y WHITE BAL)
VR6 (CHROMA GAIN)
VR17 (Y GAIN (MII))
VR5 (COMPO
VR7 (Y GAIN (
VR18 (SYNC (
VR4 (SYNC G.
L
H
SW1
(H.V BLANKING)
TP10
(INTERLEAVING)
VR3 (SUB-QU
VR1 (SC-H)
VR2 (QUAD)
TP3
(G/L BURST)
TP9 (SC)
TP2
(G/L V SYNC)
TP4
(H LOCK)
TP6 (SC LOCK)
TP8
(G/L BFP)
CT1
(SC LOCK)
CT3 (INT)
TP1
(G/L SYNC)
CT2 (INTERLEAVING)

PREPROCESS BOARD (Component Side)

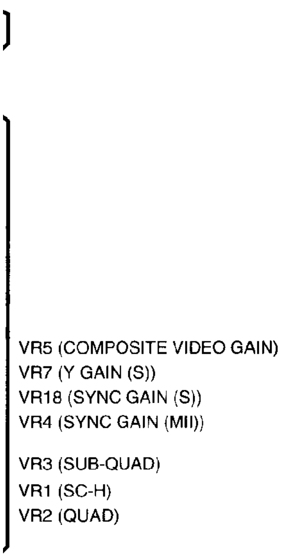

TP106 (R OUT)
TP101 (R IN)
TP102
(R PREVIDEO-1)
VR105
(R GAMMA BAL)
VR107
(R OUTPUT GAIN)
CT101
(R FREQ-2)
VR101 (R INPUT GAIN)
VR109 (R PUL CAN)
VR110 (R SHT PUL CAN)
R
TP1 (GND)
TP105
(R GAMMA-2)
VR111
(R KNEE POINT)
VR104 (R GAIN)
VR108 (R PED)
VR106 (R GAMMA)
TP104
(R GAIN)
TP103
(R PREVIDEO-2)
VR112
(R W SHD)
TP306 (G. OUT)
TP301 (G IN)
TP302
(G PREVIDEO-1)
VR305
(R GAMMA BAL)
VR307
(G OUTPUT GAIN)
CT301
(G FREQ-2)
VR301 (G INPUT GAIN)
VR309 (G PUL CAN)
VR310 (G SHT PUL CAN)
G
VR304
(G GAIN)
TP305
(G GAMMA-2)
VR311
(G KNEE POINT)
VR308 (G PED)
VR306 (G GAMMA)
TP304
(G GAIN)
TP303
(G PREVIDEO-2)
VR312 (G W SHD)
TP506 (B OUT)
TP501 (B IN)
TP502
(B PREVIDEO-1)
VR505
(B GAMMA BAL)
VR507
(B OUTPUT GAIN)
CT501
(B FREQ-2)
VR501 (B INPUT GAIN)
VR509 (B PUL CAN)
VR510 (B SHT PUL CAN)
B
VR504
(B GAIN)
TP505
(B GAMMA-2)
VR511
(B KNEE POINT)
VR508 (B PED)
VR506 (B GAMMA)
TP504
(B GAIN)
TP503
(B PREVIDEO-2)
VR512
(B W SHD)

POWER BOARD (Component Side)


TP5 (+4.95V)
VR
TP4 (SAW)
(VOLTA(
TP1 (GND)

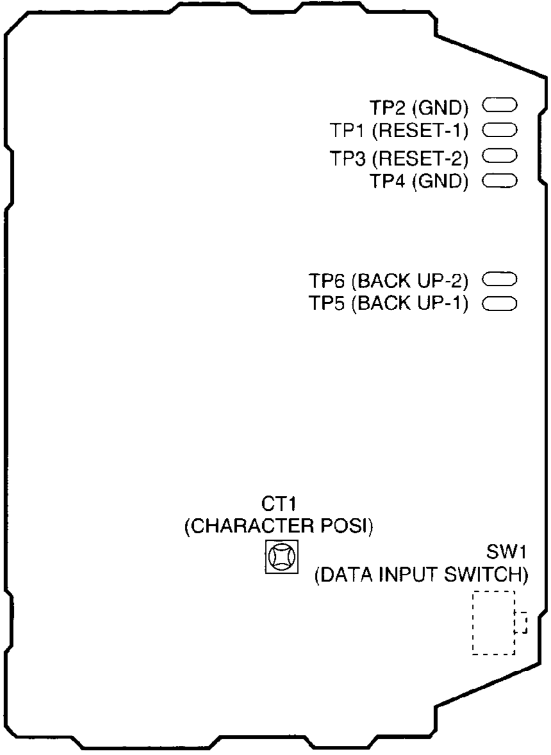
INT AND ADJUSTING CONTROL

e)



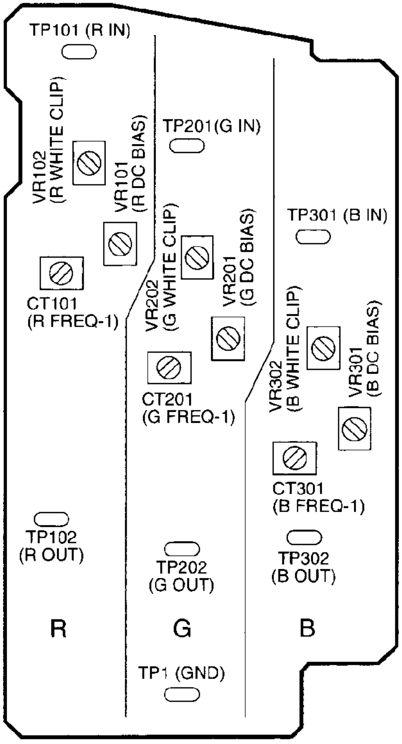
VR5 (COMPOSITE VIDEO GAIN)
VR7 (Y GAIN (S))
VR18 (SYNC GAIN (S))
VR4 (SYNC GAIN (MII))
VR3 (SUB-QUAD)
VR1 (SC-H)
VR2 (QUAD)

SYSTEM CONTROL BOARD (Pattern Side)



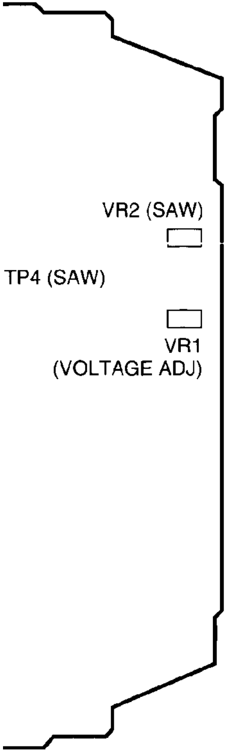
TP2 (GND)
TP1 (RESET-1)
TP3 (RESET-2)
TP4 (GND)
TP6 (BACK UP-2)
TP5 (BACK UP-1)
CT1
(CHARACTER POSI)
SW1
(DATA INPUT SWITCH)

PREAMP BOARD (Pattern Side)



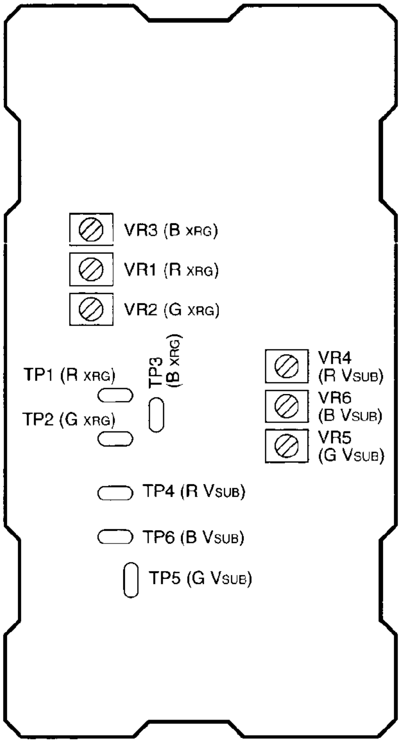
TP101 (R IN)
VR102
(R WHITE CLIP)
VR101
(R DC BIAS)
TP201(G IN)
CT101
(R FREQ-1)
VR202
(G WHITE CLIP)
VR201
(G DC BIAS)
TP301 (B IN)
CT201
(G FREQ-1)
VR302
(B WHITE CLIP)
VR301
(B DC BIAS)
CT301
(B FREQ-1)
TP102
(R OUT)
TP202
(G OUT)
TP302
(B OUT)
R
G
B
TP1 (GND)

nent Side)



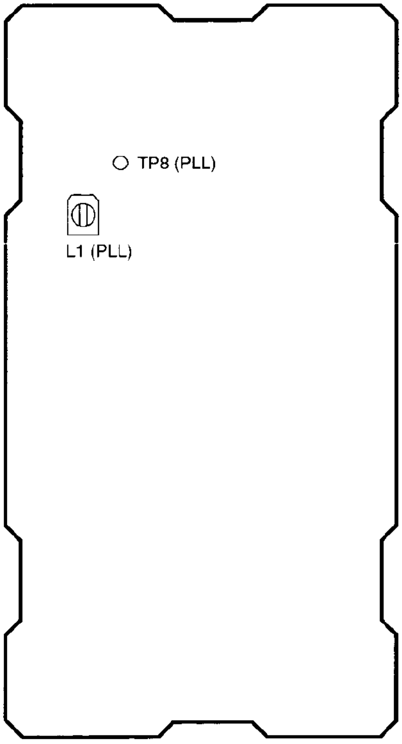
VR2 (SAW)
TP4 (SAW)
VR1
(VOLTAGE ADJ)

DRIVE BOARD (Pattern Side)



VR3 (B XRG)
VR1 (R XRG)
VR2 (G XRG)
TP3
(B XRG)
TP1 (R XRG)
TP2 (G XRG)
VR4
(R VSUB)
VR6
(B VSUB)
VR5
(G VSUB)
TP4 (R VSUB)
TP6 (B VSUB)
TP5 (G VSUB)

DRIVE BOARD (Component Side)



TP8 (PLL)
L1 (PLL)

CHIP COMPONENTS

1. Chip Transistor

The transistor number is indicated on the top surface of the chip transistor using two alphabet letters or one numerical number and two alphabet letters.

Rank of DC Current Gain (hFE)
Transistor Number

Transistor Number

(Chip Transistor)

Letter	Transistor No.	Letter	Transistor No.
A	2SB709	X	2SD602A
B	2SB709A	Y	2SD601
C	2SB710	Z	2SD601A
D	2SB710A	1A	2SB799
E	2SA1022	1B	2SB814
F	2SA1034	1C	2SB902
H	2SA1035	1F	2SK321
I	2SB792	1K	2SK316
K	2SC2778	1L	2SK247
P	2SD814	1M	2SJ84
Q	2SD813	1N	2SK199
R	2SC2480	1O	2SK198
S	2SC2405	1T	2SC3077
T	2SC2406	1X	2SC2845
U	2SC2404	1Z	2SD1030
V	2SC2295	2B	2SK374
W	2SD602	2C	2SK116
BQ	2SB766A	UMT	2SC4081

(Small Chip Transistor) (Pair Transistor)

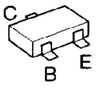
Letter	Transistor No.
A	2SB1218
B	2SB1218A
D	2SB1219A
U	2SC3931
W	2SD1820
X	2SD1820A
Y	2SD1819
E3	2SA1226
OS	2SB1219
UC	2SA1532
YU	2SC3938

Letter	Transistor No.	Letter	Transistor No.
5R	XN1501	5H	XP4501
7S	XN1601	5C	XP4601
5H	XN4501	5H	XP4501
5C	XN4601	5L	XP5501
5L	XN5501	4N	XP5601
4N	XN5601	7S	XP6501
5N	XN6501	7W	XP6435
7W	XN6435	7F	XP6534
7F	XN6534	X1	UMX1
5R	XP1501	Z1	UMZ1
7S	XP1601		

Example: WQ → 2SD602-Q
YQ → 2SD601-Q
1BS → 2SB814-S

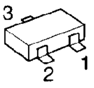
Appearance and Symbols

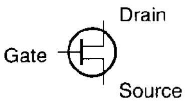
Transistor



C: Collector
B: Bass
E: Emitter

FET





	1	2	3
Eacept 2SK199	Drain	Source	Gate
2SK199	Gate	Drain	Source

2. Chip Diode

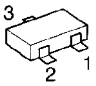
The diode number is indicated on the top surface of the chip diode using two alphabet letters.

M
Type
Diode

Diode Number

	1	2	3
MA28/MA28W/MA28T	–	Anode	Cathode
MA151K/MA152K	–	Anode	Cathode
MA151A/MA152A	–	Cathode	Anode
MA151WK/MA152WK	Anode	Anode	Cathode
MA151WA/MA152WA	Cathode	Cathode	Anode
MA153	Cathode	Anode	Common
MA141K	–	Anode	Cathode
MA143	Anode	Cathode	Common
MA3062	Anode	–	Cathode
RD421D	Anode	–	Cathode

Appearance and Symbol



Anode
Cathode

	1	2	3
MA28/MA28W/MA28T	–	Anode	Cathode
MA151K/MA152K	–	Anode	Cathode
MA151A/MA152A	–	Cathode	Anode
MA151WK/MA152WK	Anode	Anode	Cathode
MA151WA/MA152WA	Cathode	Cathode	Anode
MA153	Cathode	Anode	Common
MA141K	–	Anode	Cathode
MA143	Anode	Cathode	Common
MA3062	Anode	–	Cathode
RD421D	Anode	–	Cathode

3. Chip Resistor

The resistor value is indicated on the bottom surface of the chip resistor using three digit numbers.

Multiplier (0 - 5)
2nd. Significant Digit (0 - 9)
1st. Significant Digit (1 - 9)

Example:
330 → $33 \times 10^0 = 33\ \Omega$
561 → $56 \times 10^1 = 560\ \Omega$
123 → $12 \times 10^3 = 12\ \mathrm{k}\Omega$

Note: Zero ohm resistor (jumper chip) is colored red or green.

4. Chip Capacitor

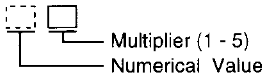
The capacitive value of replacement chip capacitors is indicated on the bottom surface. original parts do not have value indication.

If the capacitive value is less than 100 pF, the value will be indicated by one or two digit number expressing the capacity directly in pF.

Example:

0.5 → 0.5 pF 2.5 → 2.5 pF
.75 → 0.75 pF 33 → 33 pF
1 → 1 pF 82 → 82 pF

If the capacitive value is 100 pF or greater, the value will be indicated by an alpha-numeric code. The letter precedes the number and expresses a numerical value to be multiplied by the number which follows.



Numerical Value

Letter	Value	Letter	Value
A	10	N	33
B	11	P	36
C	12	Q	39
D	13	R	43
E	15	S	47
F	16	T	51
G	18	U	56
H	20	V	62
J	22	W	68
K	24	X	75
L	27	Y	82
M	30	Z	91

* Letters I and O are not used.

Example: A1 → 10×10^1 = 100 pF
N2 → 33×10^2 = 3300 pF
S3 → 47×10^3 = 47000 pF

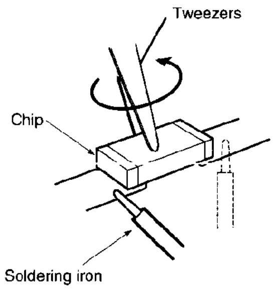
5. Precautions in replacing the chip component

1. Make sure that the unit is turned OFF when replacing the chip.
2. Use tweezers to prevent any damage to the chip surface.
3. Do not re-use the chips after removal.
4. Do not rub the electrode of chips.
5. Do not subject the chips to excessive stress.
6. It is recommended that a pencil-type soldering iron to be used.
7. The solder whose diameter is less than 0.5 mm is recommended.
8. Do not heat the chip beyond 3 second.
9. Maintain temperature control under 260°C (500°F) when soldering.

5-1. Removal (Transistor, Diode, Resistor and Capacitor)

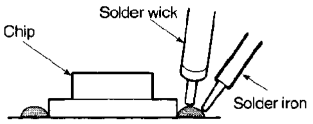
1. Add the solder to both ends of the chip (three leads for chip transistor).
2. While attaching the soldering iron to both ends of the chip (three leads for chip transistor) as shown below, remove the chip by turning with tweezers.

Note: Be careful not to damage other chips.

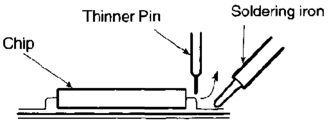


5-2. Removal (IC)

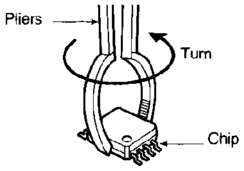
1. Add the solder wick and soldering iron to each lead of the IC and remove solder.



2. Add the soldering iron to each lead of the IC and left each lead of the IC using thinner pin.

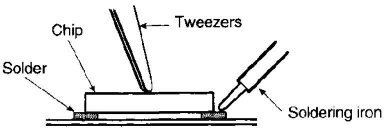


3. Remove IC turning it with pliers.

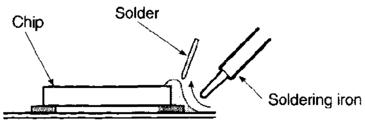


5-3. Mounting

1. Place the solder thinly on the chip mounting foil.
2. Solder the chip temporarily while holding the chip with the tweezers.



3. Solder both ends of chip (three leads for chip transistor).



ORDER NO. AVS9501939C8

Service Manual

Colour Video Camera

WV-F565

Vol. 3

Wiring Diagram
Block Diagram
Schematic Diagram
Conductor View

CONTENTS

Appearance of IC, Transistor and Diode 3-1
Wiring Diagram 3-2
Block Diagram
- Overall 3-3
- Mother Board 3-4
- System Control Board 3-5
- Digital Process Board 3-6
- Drive Board 3-7
- Sync/Encoder Board 3-8
- Sensor Board 3-9
- Preamp Board 3-10
- Preprocess Board 3-11
- Power Board 3-12

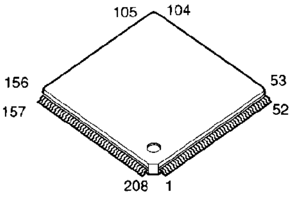
Schematic Diagram
- Preamp Board 3-13
- System Control Board 3-14
- Sync/Encoder Board 3-17
- Digital Process Board 3-18
- Power Board 3-20
- Preprocess Board 3-23
- Mother Board 3-24
- Drive Board 3-27
- Sensor Board 3-28

Conductor View
- Preamp Board 3-13
- System Control Board 3-15
- Sync/Encoder Board 3-16
- Digital Process Board 3-19
- Power Board 3-21
- Preprocess Board 3-22
- Mother Board 3-25
- Drive Board 3-26
- Sensor Board 3-29

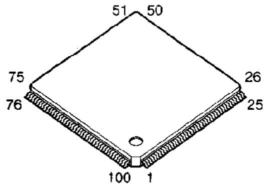
Panasonic

APPEARANCE OF IC, TRANSIS

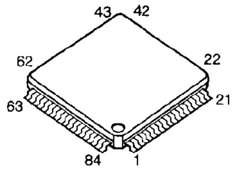
YWVY06632
YWVY06633


105
104
156
157
53
52
208
1

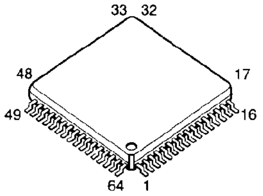
YWMB87075D
YWL7A0425


51
50
75
76
26
25
100
1

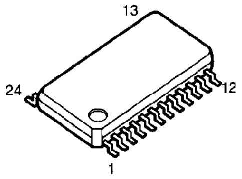
YWMN18885


43
42
62
63
22
21
84
1

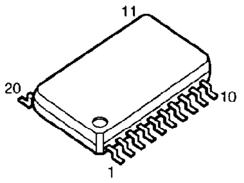
YWCXD2404R
YWL7A1245


33
32
48
49
17
16
64
1

YWMB86023PFG

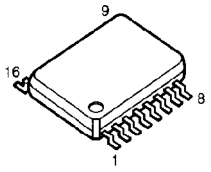


YWUPD6450601
UPD74HC245GS
YWMC74AC541M
YWMB3782PF
YWUPD16502GS



YWM51957BFP
YWUPD4053BG
YWUPD4520BG
YWUPD4051BG
YWUPD4050BG
UPD74HC4053B
AN90B01S
YWMC14046BF

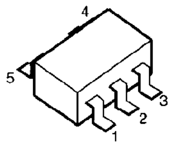
SN74LS221S
YWMC74AC157M
MC74HC4050FR
YWMC74HC367F
UPD74HC4049G



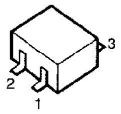
YWMB86023PFG
YWMC74AC04M
YWMC74AC00M
YWMC74AC86M
YWMC74AC74M
YWMC74HC74AF
YWUPC4062G2
YWTC4S584FR

Y
Y
Y
Y
Y
U
Y
Y

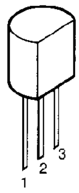
YWTC4S69F
YWTC4S66F
YWTC4S30FR
YWTC7S08F
YWTC7S04F
YWSC7S32FER
YWSC14S66F



MN13821M

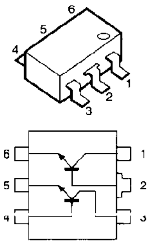


YWNJM78L05UA

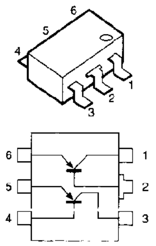


1: Vcc
2: GND
3: Output

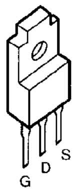
UMX2


6
5
4
2
1
3
6
5
4
1
2
3

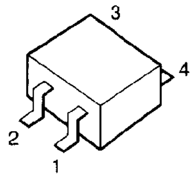
XN6435


6
5
4
1
2
3
6
5
4
1
2
3

2SJ128

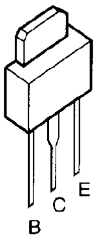


3SK157

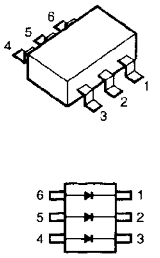


1. Substrate
2. Gate
3. Source
4. Drain

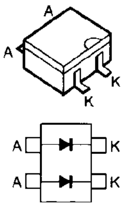
2SA1615



YWIMN10


6
5
4
1
2
3
6
5
4
1
2
3

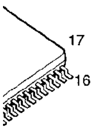
MA159



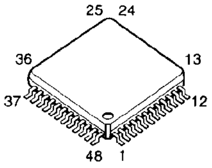
YWD

RANSISTOR AND DIODE

.04R
45

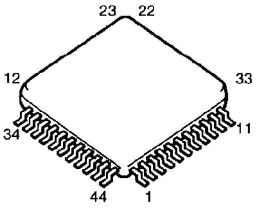


MN6577H
YWMB40950
YWCXK1203R



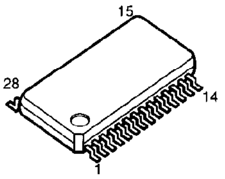
25
24
36
13
37
12
48
1

MN53020XXF
MN53003XCU
YWUPD65K104



23
22
12
33
34
11
44
1

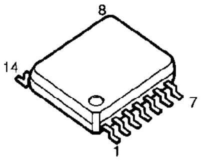
YWM27C512F62
43256AGU10L



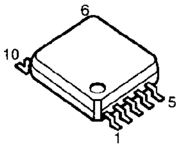
B86023PFG
C74AC04M
C74AC00M
C74AC86M
C74AC74M
C74HC74AF
PC4062G2
C4S584FR

YWUPD74HC02G
YWCX20095A
YWRTC450315B
YWUPD4081BG
YWUPD4011BG
UPD74HC4066G
YWUPD4538BG
YWUPC4064G2

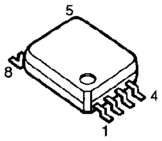
YWTC74V08F
YWTC74V02F
NJM2902M
YWNJM2902VT1
YWMC74AC32M
YWMC74HC08AF
YWUPD74HC04G
YWUPD74HC08G



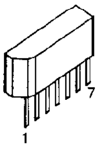
YWM62352GP
YWM5282FP

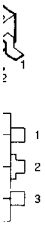


NJM2904M
YWNJM3403AM
YWLM1881M
YWNJM2240M
NJM2903M
YWM51957BFP
YWBA9701F
YWTC7W74F

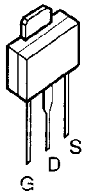


AN614



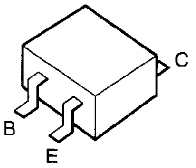


2SJ132

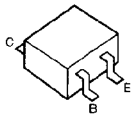


2SC4099
2SA1576
2SC4081
2SC3931-CD

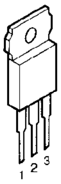
2SD1823-RS
2SA1532-CD
2SA1577



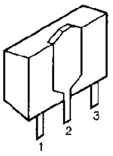
2SA1036K



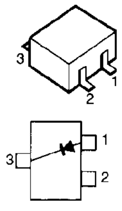
2SK853



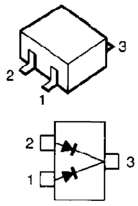
2SB1132-Q
2SD1664
2SB1386



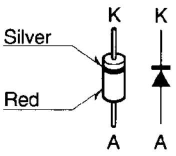
YWDA114



YWDA204K

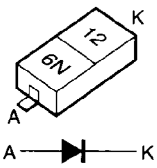


YWERA85009
YWERA81004

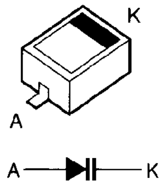


K
K
Silver
Red
A
A

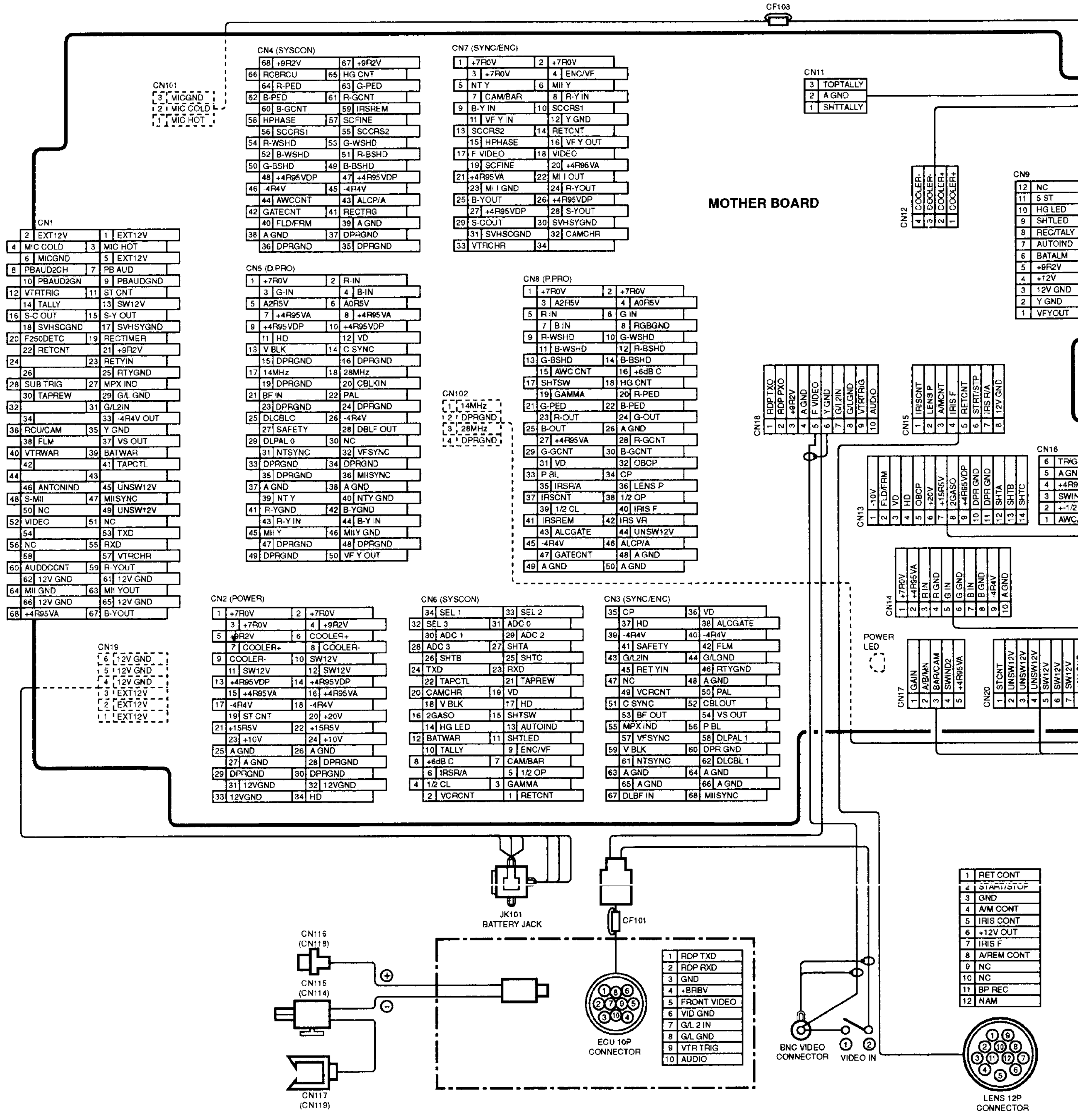
V03G



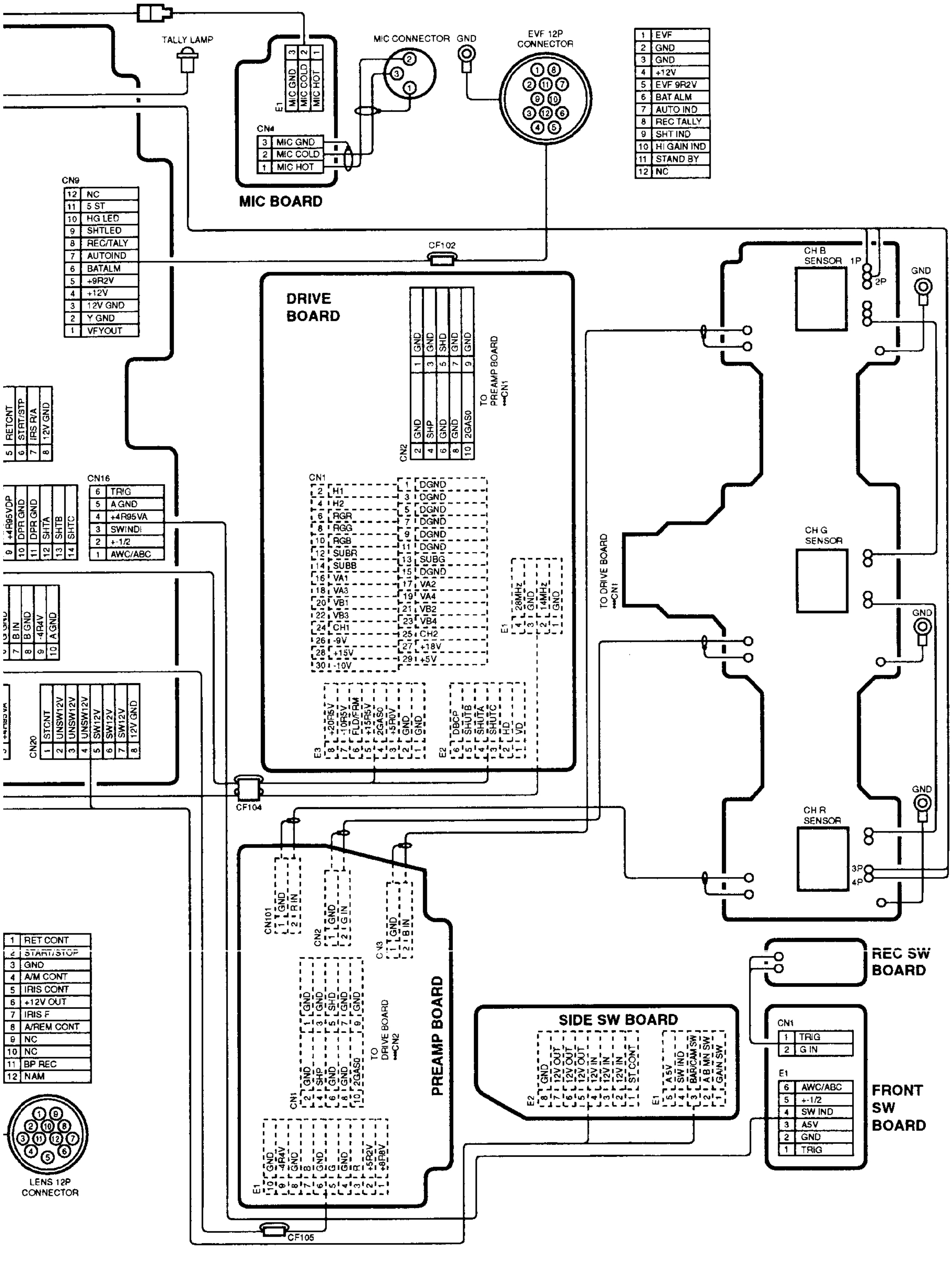
YWHVU17

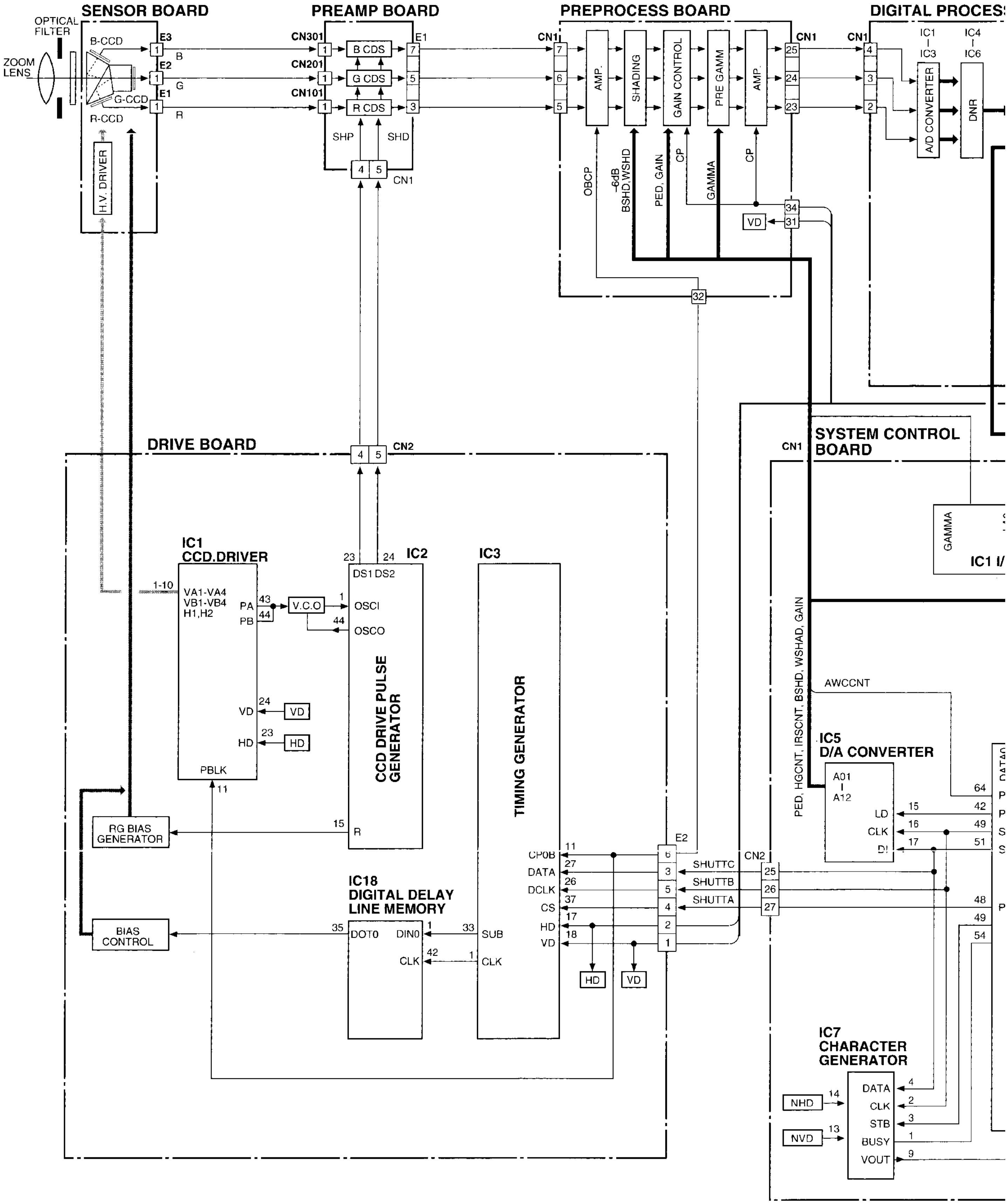


WIRING DIAGRAM

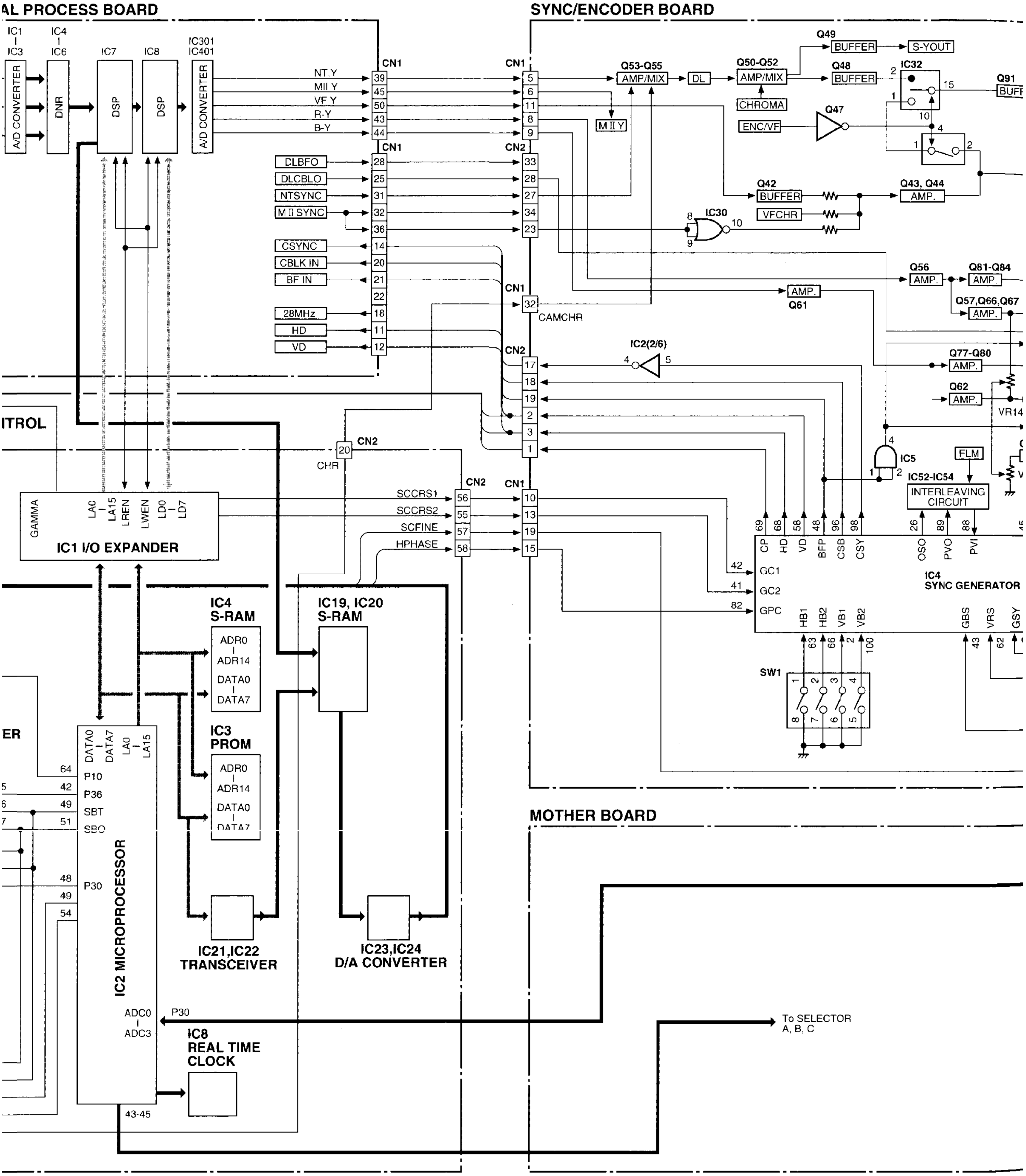

CF103
MOTHER BOARD
CN101
3 MICGND
2 MIC COLD
1 MIC HOT
CN4 (SYSCON)
68 +9R2V
67 +9R2V
66 RCBRCU
65 HG CNT
64 R-PED
63 G-PED
62 B-PED
61 R-GCNT
60 B-GCNT
59 IRSREM
58 HPHASE
57 SCFINE
56 SCCRS1
55 SCCRS2
54 R-WSHD
53 G-WSHD
52 B-WSHD
51 R-BSHD
50 G-BSHD
49 B-BSHD
48 +4R95VDP
47 +4R95VDP
46 -4R4V
45 -4R4V
44 AWCCNT
43 ALCP/A
42 GATECNT
41 RECTRG
40 FLD/FRM
39 A GND
38 A GND
37 DPRGND
36 DPRGND
35 DPRGND
CN7 (SYNC/ENC)
1 +7R0V
2 +7R0V
3 +7R0V
4 ENC/VF
5 NT Y
6 MII Y
7 CAM/BAR
8 R-Y IN
9 B-Y IN
10 SCCRS1
11 VF Y IN
12 Y GND
13 SCCRS2
14 RETCNT
15 HPHASE
16 VF Y OUT
17 F VIDEO
18 VIDEO
19 SCFINE
20 +4R95VA
21 +4R95VA
22 MI I OUT
23 MI I GND
24 R-YOUT
25 B-YOUT
26 +4R95VDP
27 +4R95VDP
28 S-YOUT
29 S-COUT
30 SVHSYGND
31 SVHSCGND
32 CAMCHR
33 VTRCHR
34
CN11
3 TOPTALLY
2 A GND
1 SHTTALLY
CN12
4 COOLER-
3 COOLER-
2 COOLER+
1 COOLER+
CN9
12 NC
11 5 ST
10 HG LED
9 SHTLED
8 REC/TALY
7 AUTOIND
6 BATALM
5 +9R2V
4 +12V
3 12V GND
2 Y GND
1 VFYOUT
CN1
2 EXT12V
1 EXT12V
4 MIC COLD
3 MIC HOT
6 MICGND
5 EXT12V
8 PBAUD2CH
7 PB AUD
10 PBAUD2GN
9 PBAUDGND
12 VTRTRIG
11 ST CNT
14 TALLY
13 SW12V
16 S-C OUT
15 S-Y OUT
18 SVHSCGND
17 SVHSYGND
20 F250DETC
19 RECTIMER
22 RETCNT
21 +9R2V
24
23 RETYIN
26
25 RTYGND
28 SUB TRIG
27 MPX IND
30 TAPREW
29 G/L GND
32
31 G/L2IN
34
33 -4R4V OUT
36 RCU/CAM
35 Y GND
38 FLM
37 VS OUT
40 VTRWAR
39 BATWAR
42
41 TAPCTL
44
43
46 ANTONIND
45 UNSW12V
48 S-MII
47 MIISYNC
50 NC
49 UNSW12V
52 VIDEO
51 NC
54
53 TXD
56 NC
55 RXD
58
57 VTRCHR
60 AUDDCCNT
59 R-YOUT
62 12V GND
61 12V GND
64 MII GND
63 MII YOUT
66 12V GND
65 12V GND
68 +4R95VA
67 B-YOUT
CN5 (D.PRO)
1 +7R0V
2 R-IN
3 G-IN
4 B-IN
5 A2R5V
6 A0R5V
7 +4R95VA
8 +4R95VA
9 +4R95VDP
10 +4R95VDP
11 HD
12 VD
13 V BLK
14 C SYNC
15 DPRGND
16 DPRGND
17 14MHz
18 28MHz
19 DPRGND
20 CBLKIN
21 BF IN
22 PAL
23 DPRGND
24 DPRGND
25 DLCBLO
26 -4R4V
27 SAFETY
28 DBLF OUT
29 DLPAL 0
30 NC
31 NTSYNC
32 VFSYNC
33 DPRGND
34 DPRGND
35 DPRGND
36 MIISYNC
37 A GND
38 A GND
39 NT Y
40 NTY GND
41 R-YGND
42 B-YGND
43 R-Y IN
44 B-Y IN
45 MII Y
46 MIIY GND
47 DPRGND
48 DPRGND
49 DPRGND
50 VF Y OUT
CN102
1 14MHz
2 DPRGND
3 28MHz
4 DPRGND
CN8 (P.PRO)
1 +7R0V
2 +7R0V
3 A2R5V
4 A0R5V
5 R IN
6 G IN
7 B IN
8 RGBGND
9 R-WSHD
10 G-WSHD
11 B-WSHD
12 R-BSHD
13 G-BSHD
14 B-BSHD
15 AWC CNT
16 +6dB C
17 SHTSW
18 HG CNT
19 GAMMA
20 R-PED
21 G-PED
22 B-PED
23 R-OUT
24 G-OUT
25 B-OUT
26 A GND
27 +4R95VA
28 R-GCNT
29 G-GCNT
30 B-GCNT
31 VD
32 OBCP
33 P BL
34 CP
35 IRSR/A
36 LENS P
37 IRSCNT
38 1/2 OP
39 1/2 CL
40 IRIS F
41 IRSREM
42 IRS VR
43 ALCGATE
44 UNSW12V
45 -4R4V
46 ALCP/A
47 GATECNT
48 A GND
49 A GND
50 A GND
CN18
1 RDP TXO
2 RDP PXO
3 +9R2V
4 A GND
5 F VIDEO
6 Y GND
7 G/L2IN
8 G/LGND
9 VTRTRIG
10 AUDIO
CN15
1 IRISCNT
2 LENS P
3 A/MCNT
4 IRIS F
5 RETCNT
6 STRT/STP
7 IRS R/A
8 12V GND
CN16
6 TRIG
5 A GN
4 +4R9
3 SWIN
2 +-1/2
1 AWC
CN13
1 -10V
2 FLD/FRM
3 VD
4 HD
5 OBCP
6 +20V
7 +15R5V
8 2GASO
9 +4R95VDP
10 DPR GND
11 DPR GND
12 SHTA
13 SHTB
14 SHTC
CN14
1 +7R0V
2 +4R95VA
3 R IN
4 R GND
5 G IN
6 G GND
7 B IN
8 B GND
9 -4R4V
10 A GND
POWER LED
CN17
1 GAIN
2 A/B/MN
3 BAR/CAM
4 SWIND2
5 +4R95VA
CN20
1 STCNT
2 UNSW12V
3 UNSW12V
4 UNSW12V
5 SW12V
6 SW12V
7 SW12V
CN19
6 12V GND
5 12V GND
4 12V GND
3 EXT12V
2 EXT12V
1 EXT12V
CN2 (POWER)
1 +7R0V
2 +7R0V
3 +7R0V
4 +9R2V
5 +9R2V
6 COOLER+
7 COOLER+
8 COOLER-
9 COOLER-
10 SW12V
11 SW12V
12 SW12V
13 +4R95VDP
14 +4R95VDP
15 +4R95VA
16 +4R95VA
17 -4R4V
18 -4R4V
19 ST CNT
20 +20V
21 +15R5V
22 +15R5V
23 +10V
24 +10V
25 A GND
26 A GND
27 A GND
28 DPRGND
29 DPRGND
30 DPRGND
31 12VGND
32 12VGND
33 12VGND
34 HD
CN6 (SYSCON)
34 SEL 1
33 SEL 2
32 SEL 3
31 ADC 0
30 ADC 1
29 ADC 2
28 ADC 3
27 SHTA
26 SHTB
25 SHTC
24 TXD
23 RXD
22 TAPCTL
21 TAPREW
20 CAMCHR
19 VD
18 V BLK
17 HD
16 2GASO
15 SHTSW
14 HG LED
13 AUTOIND
12 BATWAR
11 SHTLED
10 TALLY
9 ENC/VF
8 +6dB C
7 CAM/BAR
6 IRSR/A
5 1/2 OP
4 1/2 CL
3 GAMMA
2 VCRCNT
1 RETCNT
CN3 (SYNC/ENC)
35 CP
36 VD
37 HD
38 ALCGATE
39 -4R4V
40 -4R4V
41 SAFETY
42 FLM
43 G/L2IN
44 G/LGND
45 RET YIN
46 RTYGND
47 NC
48 A GND
49 VCRCNT
50 PAL
51 C SYNC
52 CBLOUT
53 BF OUT
54 VS OUT
55 MPX IND
56 P BL
57 VFSYNC
58 DLPAL 1
59 V BLK
60 DPR GND
61 NTSYNC
62 DLCBL 1
63 A GND
64 A GND
65 A GND
66 A GND
67 DLBF IN
68 MIISYNC
JK101
BATTERY JACK
CF101
CN116
(CN118)
CN115
(CN114)
CN117
(CN119)
+
−
ECU 10P
CONNECTOR
1 RDP TXD
2 RDP RXD
3 GND
4 +BRBV
5 FRONT VIDEO
6 VID GND
7 G/L 2 IN
8 G/L GND
9 VTR TRIG
10 AUDIO
BNC VIDEO
CONNECTOR
① ②
VIDEO IN
1 RET CONT
2 START/STOP
3 GND
4 A/M CONT
5 IRIS CONT
6 +12V OUT
7 IRIS F
8 A/REM CONT
9 NC
10 NC
11 BP REC
12 NAM
LENS 12P
CONNECTOR

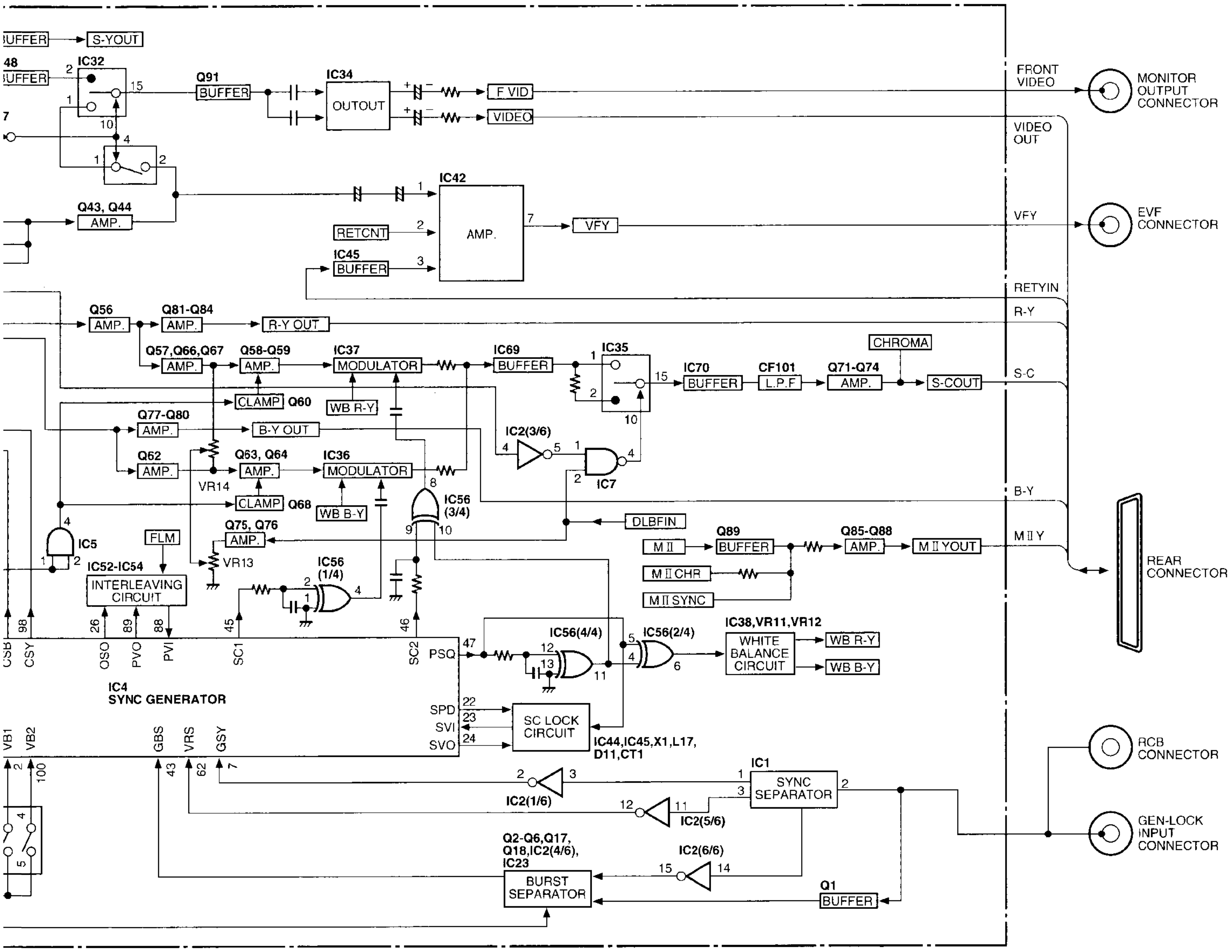
AGRAM


TALLY LAMP
MIC CONNECTOR
GND
EVF 12P CONNECTOR
1 EVF
2 GND
3 GND
4 +12V
5 EVF 9R2V
6 BAT ALM
7 AUTO IND
8 REC TALLY
9 SHT IND
10 HI GAIN IND
11 STAND BY
12 NC
E1
3 MIC GND
2 MIC COLD
1 MIC HOT
CN4
3 MIC GND
2 MIC COLD
1 MIC HOT
MIC BOARD
CN9
12 NC
11 5 ST
10 HG LED
9 SHTLED
8 REC/TALY
7 AUTOIND
6 BATALM
5 +9R2V
4 +12V
3 12V GND
2 Y GND
1 VFYOUT
5 RETCNT
6 START/STP
7 IRIS R/A
8 12V GND
9 +4R95VDP
10 DPR GND
11 DPR GND
12 SHTA
13 SHTB
14 SHTC
CN16
6 TRIG
5 A GND
4 +4R95VA
3 SWINDI
2 +-1/2
1 AWC/ABC
7 B IN
8 B GND
9 -4R4V
10 A GND
CN20
1 STCNT
2 UNSW12V
3 UNSW12V
4 UNSW12V
5 SW12V
6 SW12V
7 SW12V
8 12V GND
CF102
CF104
CF105
DRIVE BOARD
CN2
2 GND
4 SHP
6 GND
8 GND
10 2GAS0
1 GND
3 GND
5 SHD
7 GND
9 GND
TO PREAMP BOARD ←CN1
CN1
2 H1
4 H2
6 RGR
8 RGG
10 RGB
12 SUBR
14 SUBB
16 VA1
18 VA3
20 VB1
22 VB3
24 CH1
26 -9V
28 +15V
30 -10V
1 DGND
3 DGND
5 DGND
7 DGND
9 DGND
11 DGND
13 SUBG
15 DGND
17 VA2
19 VA4
21 VB2
23 VB4
25 CH2
27 +18V
29 +5V
E1
4 28MHz
3 GND
2 14MHz
1 GND
E3
8 +20R5V
7 -10RS0
6 FLD/FRM
5 +15R5V
4 2GAS0
3 +5R0V
2 GND
1 GND
E2
6 DBCP
5 SHUTB
4 SHUTA
3 SHUTC
2 HD
1 VD
TO DRIVE BOARD ←CN1
CH B SENSOR
1P
2P
GND
CH G SENSOR
GND
CH R SENSOR
GND
3P
4P
CN101
1 GND
2 R IN
CN2
1 GND
2 G IN
CN3
1 GND
2 B IN
CN1
1 GND
2 GND
3 SHP
4 SHP
5 SHD
6 GND
7 GND
8 GND
9 GND
10 2GAS0
TO DRIVE BOARD ←CN2
PREAMP BOARD
E1
10 GND
9 -4R4V
8 B
7 GND
6 G
5 GND
4 GND
3 R
2 +5R2V
1 +8R8V
1 RET CONT
2 START/STOP
3 GND
4 A/M CONT
5 IRIS CONT
6 +12V OUT
7 IRIS F
8 A/REM CONT
9 NC
10 NC
11 BP REC
12 NAM
LENS 12P CONNECTOR
SIDE SW BOARD
E2
8 GND
7 12V OUT
6 12V OUT
5 12V OUT
4 12V IN
3 12V IN
2 12V IN
1 ST CONT
E1
5 A5V
4 SW IND
3 BAR/CAM SW
2 A/B MN SW
1 GAIN SW
REC SW BOARD
CN1
1 TRIG
2 G IN
E1
6 AWC/ABC
5 +-1/2
4 SW IND
3 A5V
2 GND
1 TRIG
FRONT SW BOARD

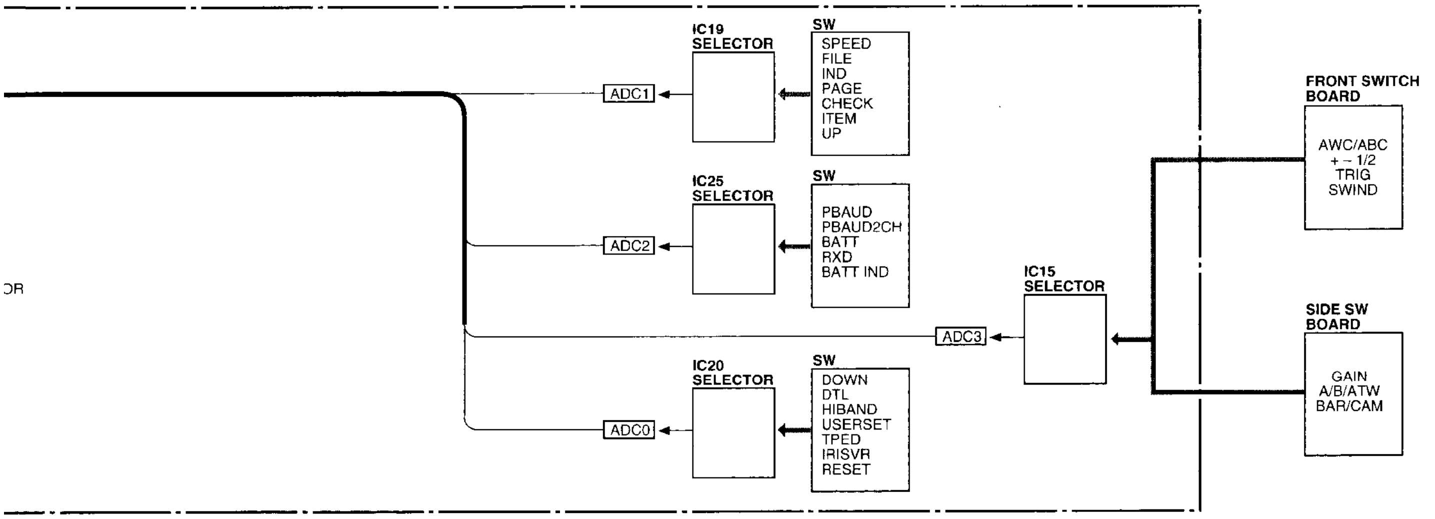

SENSOR BOARD
PREAMP BOARD
PREPROCESS BOARD
DIGITAL PROCESS
OPTICAL FILTER
ZOOM LENS
B-CCD
G-CCD
R-CCD
E3
E2
E1
B
G
R
H.V. DRIVER
CN301
CN201
CN101
B CDS
G CDS
R CDS
SHP
SHD
CN1
CN1
AMP.
SHADING
GAIN CONTROL
PRE GAMM
AMP.
OBCP
-6dB BSHD.WSHD
PED. GAIN
CP
GAMMA
CP
VD
34
31
32
CN1
IC1 – IC3
IC4 – IC6
A/D CONVERTER
DNR
DRIVE BOARD
CN2
IC1 CCD.DRIVER
1-10
VA1-VA4 VB1-VB4 H1,H2
PA
PB
43
44
V.C.O
OSCI
OSCO
VD
HD
PBLK
IC2
DS1 DS2
23
24
CCD DRIVE PULSE GENERATOR
R
15
11
IC3
TIMING GENERATOR
RG BIAS GENERATOR
BIAS CONTROL
IC18 DIGITAL DELAY LINE MEMORY
DOT0
DIN0
CLK
35
33
42
SUB
CLK
CP0B
DATA
DCLK
CS
HD
VD
11
27
26
37
17
18
E2
6
3
5
4
2
1
HD
VD
SHUTTC
SHUTTB
SHUTTA
CN2
25
26
27
SYSTEM CONTROL BOARD
CN1
GAMMA
IC1 I/
PED, HGCNT, IRSCNT, BSHD, WSHAD, GAIN
AWCCNT
IC5 D/A CONVERTER
A01 – A12
LD
CLK
DI
15
16
17
64
42
49
51
48
49
54
IC7 CHARACTER GENERATOR
DATA
CLK
STB
BUSY
VOUT
NHD
NVD
14
13
4
2
3
1
9

OVERALL BLOCK DIAGRAM


AL PROCESS BOARD
SYNC/ENCODER BOARD
IC1 – IC3
IC4 – IC6
IC7
IC8
IC301
IC401
A/D CONVERTER
DNR
DSP
DSP
A/D CONVERTER
CN1
NT.Y
MII Y
VF Y
R-Y
B-Y
DLBFO
DLCBLO
NTSYNC
M II SYNC
CSYNC
CBLK IN
BF IN
28MHz
HD
VD
CN2
CN1
CN2
CAMCHR
Q53-Q55
AMP/MIX
DL
Q50-Q52
AMP/MIX
CHROMA
M II Y
Q49
BUFFER
S-YOUT
Q48
BUFFER
IC32
Q91
BUFF
Q47
ENC/VF
Q42
BUFFER
VFCHR
Q43, Q44
AMP.
IC30
Q56
AMP.
Q81-Q84
AMP.
AMP.
Q61
Q57,Q66,Q67
AMP.
IC2(2/6)
Q77-Q80
AMP.
Q62
AMP.
VR14
IC5
FLM
IC52-IC54
INTERLEAVING CIRCUIT
ITROL
CHR
CN2
GAMMA
LA0 – LA15
LREN
LWEN
LD0 – LD7
IC1 I/O EXPANDER
SCCRS1
SCCRS2
SCFINE
HPHASE
CP
HD
VD
BFP
CSB
CSY
OSO
PVO
PVI
GC1
GC2
GPC
IC4
SYNC GENERATOR
HB1
HB2
VB1
VB2
GBS
VRS
GSY
SW1
IC4
S-RAM
ADR0 – ADR14
DATA0 – DATA7
IC19, IC20
S-RAM
IC3
PROM
ADR0 – ADR14
DATA0 – DATA7
ER
DATA0 – DATA7
LA0 – LA15
P10
P36
SBT
SBO
P30
IC2 MICROPROCESSOR
IC21,IC22
TRANSCEIVER
IC23,IC24
D/A CONVERTER
ADC0 – ADC3
P30
IC8
REAL TIME
CLOCK
43-45
MOTHER BOARD
To SELECTOR
A, B, C

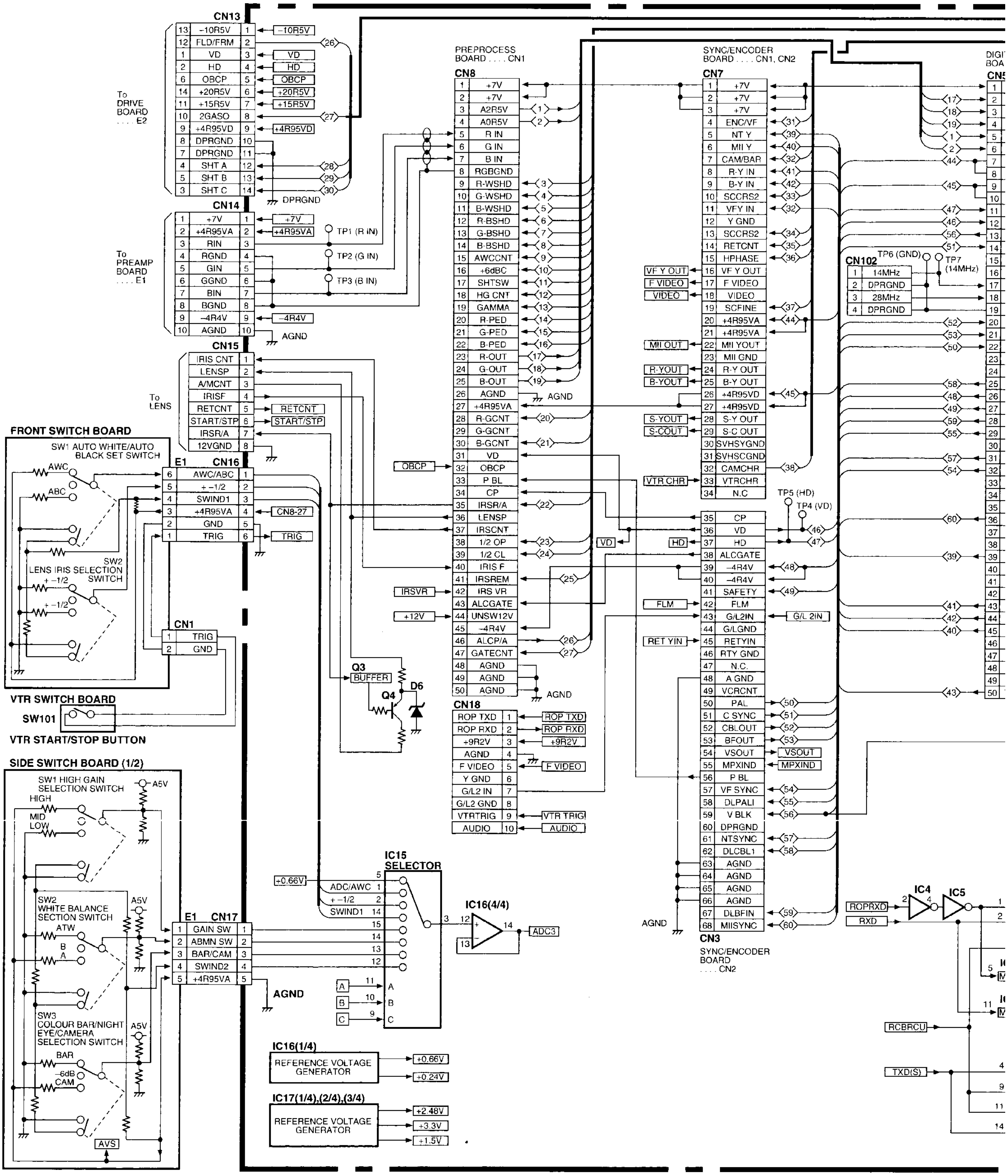


BUFFER
S-YOUT
48
BUFFER
IC32
Q91
BUFFER
IC34
OUTOUT
F VID
VIDEO
FRONT VIDEO
MONITOR OUTPUT CONNECTOR
VIDEO OUT
IC42
AMP.
Q43, Q44
AMP.
RETCNT
IC45
BUFFER
VFY
EVF CONNECTOR
RETYIN
Q56
AMP.
Q81-Q84
AMP.
R-Y OUT
R-Y
Q57,Q66,Q67
AMP.
Q58-Q59
AMP.
IC37
MODULATOR
IC69
BUFFER
IC35
IC70
BUFFER
CF101
L.P.F
Q71-Q74
AMP.
CHROMA
S-COUT
S-C
CLAMP
Q60
WB R-Y
Q77-Q80
AMP.
B-Y OUT
IC2(3/6)
IC7
Q62
AMP.
Q63, Q64
AMP.
IC36
MODULATOR
VR14
CLAMP
Q68
WB B-Y
IC56 (3/4)
B-Y
IC5
FLM
Q75, Q76
AMP.
DLBFIN
VR13
Q89
M II
BUFFER
Q85-Q88
AMP.
M II YOUT
M II Y
M II CHR
M II SYNC
REAR CONNECTOR
IC52-IC54
INTERLEAVING CIRCUIT
IC56 (1/4)
IC56(4/4)
IC56(2/4)
IC38,VR11,VR12
WHITE BALANCE CIRCUIT
WB R-Y
WB B-Y
CSB
CSY
OSO
PVO
PVI
SC1
SC2
PSQ
IC4
SYNC GENERATOR
SPD
SVI
SVO
SC LOCK CIRCUIT
IC44,IC45,X1,L17, D11,CT1
VB1
VB2
GBS
VRS
GSY
IC1
SYNC SEPARATOR
IC2(1/6)
IC2(5/6)
IC2(6/6)
Q2-Q6,Q17, Q18,IC2(4/6), IC23
BURST SEPARATOR
Q1
BUFFER
RCB CONNECTOR
GEN-LOCK INPUT CONNECTOR

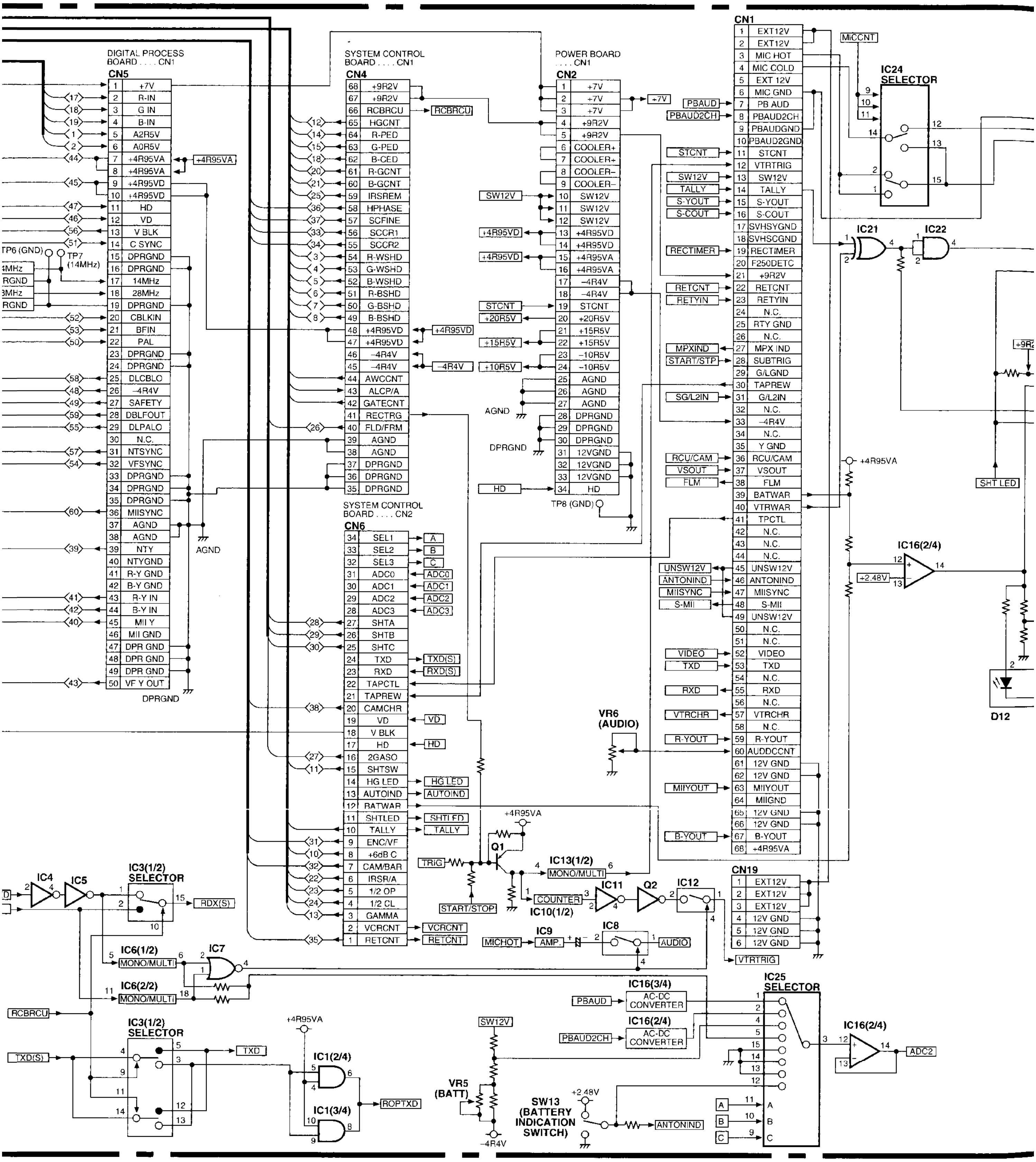


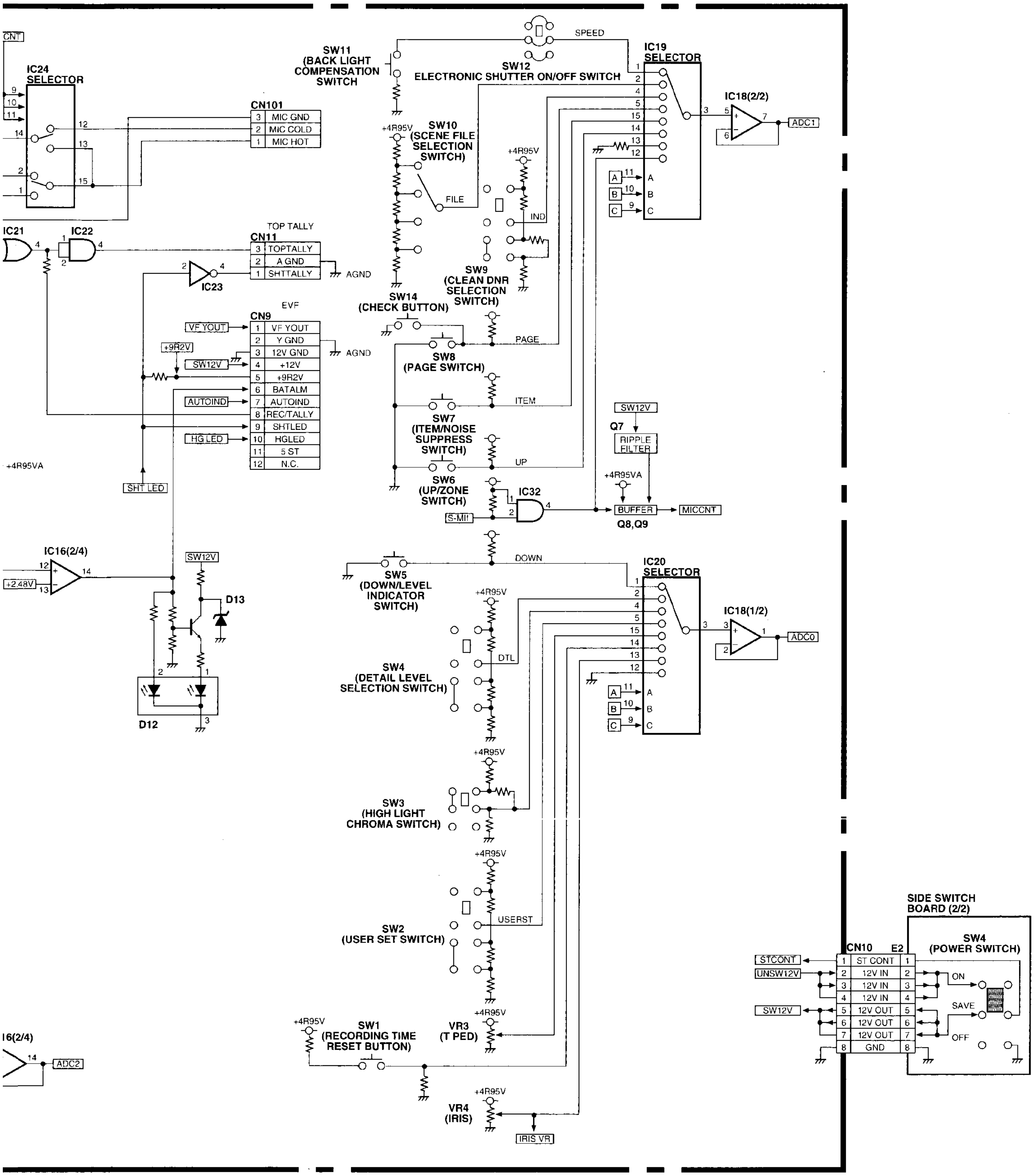
IC19
SELECTOR
SW
SPEED
FILE
IND
PAGE
CHECK
ITEM
UP
ADC1
IC25
SELECTOR
SW
PBAUD
PBAUD2CH
BATT
RXD
BATT IND
ADC2
OR
IC15
SELECTOR
ADC3
IC20
SELECTOR
SW
DOWN
DTL
HIBAND
USERSET
TPED
IRISVR
RESET
ADC0
FRONT SWITCH BOARD
AWC/ABC
+ − 1/2
TRIG
SWIND
SIDE SW BOARD
GAIN
A/B/ATW
BAR/CAM

MOTHER BOARD


CN13
-10R5V
FLD/FRM
VD
HD
OBCP
+20R5V
+15R5V
2GASO
+4R95VD
DPRGND
DPRGND
SHT A
SHT B
SHT C
To DRIVE BOARD E2
DPRGND
CN14
+7V
+4R95VA
RIN
RGND
GIN
GGND
BIN
BGND
-4R4V
AGND
To PREAMP BOARD E1
TP1 (R IN)
TP2 (G IN)
TP3 (B IN)
AGND
CN15
IRIS CNT
LENSP
A/MCNT
IRISF
RETCNT
START/STP
IRSR/A
12VGND
To LENS
RETCNT
START/STP
FRONT SWITCH BOARD
SW1 AUTO WHITE/AUTO BLACK SET SWITCH
AWC
ABC
SW2 LENS IRIS SELECTION SWITCH
+ -1/2
E1
CN16
AWC/ABC
+ -1/2
SWIND1
+4R95VA
GND
TRIG
CN8-27
TRIG
CN1
TRIG
GND
VTR SWITCH BOARD
SW101
VTR START/STOP BUTTON
SIDE SWITCH BOARD (1/2)
SW1 HIGH GAIN SELECTION SWITCH
A5V
HIGH
MID
LOW
SW2 WHITE BALANCE SECTION SWITCH
ATW
B
A
SW3 COLOUR BAR/NIGHT EYE/CAMERA SELECTION SWITCH
BAR
-6dB
CAM
AVS
E1
CN17
GAIN SW
ABMN SW
BAR/CAM
SWIND2
+4R95VA
AGND
Q3
BUFFER
Q4
D6
PREPROCESS BOARD CN1
CN8
+7V
+7V
A2R5V
A0R5V
R IN
G IN
B IN
RGBGND
R-WSHD
G-WSHD
B-WSHD
R-BSHD
G-BSHD
B-BSHD
AWCCNT
+6dBC
SHTSW
HG CNT
GAMMA
R-PED
G-PED
B-PED
R-OUT
G-OUT
B-OUT
AGND
+4R95VA
R-GCNT
G-GCNT
B-GCNT
VD
OBCP
P BL
CP
IRSR/A
LENSP
IRSCNT
1/2 OP
1/2 CL
IRIS F
IRSREM
IRS VR
ALCGATE
UNSW12V
-4R4V
ALCP/A
GATECNT
AGND
AGND
AGND
AGND
OBCP
IRSVR
+12V
CN18
ROP TXD
ROP RXD
+9R2V
AGND
F VIDEO
Y GND
G/L2 IN
G/L2 GND
VTRTRIG
AUDIO
ROP TXD
ROP RXD
+9R2V
F VIDEO
VTR TRIG
AUDIO
IC15 SELECTOR
+0.66V
ADC/AWC
+ -1/2
SWIND1
A
B
C
IC16(4/4)
ADC3
IC16(1/4)
REFERENCE VOLTAGE GENERATOR
+0.66V
+0.24V
IC17(1/4),(2/4),(3/4)
REFERENCE VOLTAGE GENERATOR
+2.48V
+3.3V
+1.5V
SYNC/ENCODER BOARD CN1, CN2
CN7
+7V
+7V
+7V
ENC/VF
NT Y
MII Y
CAM/BAR
R-Y IN
B-Y IN
SCCRS2
VFY IN
Y GND
SCCRS2
RETCNT
HPHASE
VF Y OUT
F VIDEO
VIDEO
SCFINE
+4R95VA
+4R95VA
MII YOUT
MII GND
R-Y OUT
B-Y OUT
+4R95VD
+4R95VD
S-Y OUT
S-C OUT
SVHSYGND
SVHSCGND
CAMCHR
VTRCHR
N.C
VF Y OUT
F VIDEO
VIDEO
MII OUT
R-YOUT
B-YOUT
S-YOUT
S-COUT
VTR CHR
TP5 (HD)
TP4 (VD)
VD
HD
CP
VD
HD
ALCGATE
-4R4V
-4R4V
SAFETY
FLM
G/L2IN
G/LGND
RETYIN
RTY GND
N.C.
A GND
VCRCNT
PAL
C SYNC
CBLOUT
BFOUT
VSOUT
MPXIND
P BL
VF SYNC
DLPALI
V BLK
DPRGND
NTSYNC
DLCBL1
AGND
AGND
AGND
AGND
DLBFIN
MIISYNC
FLM
G/L 2IN
RET YIN
VSOUT
MPXIND
AGND
CN3
SYNC/ENCODER BOARD CN2
DIGI BOA
CN5
CN102
TP6 (GND)
TP7 (14MHz)
14MHz
DPRGND
28MHz
DPRGND
IC4
IC5
ROPRXD
RXD
RCBRCU
TXD(S)

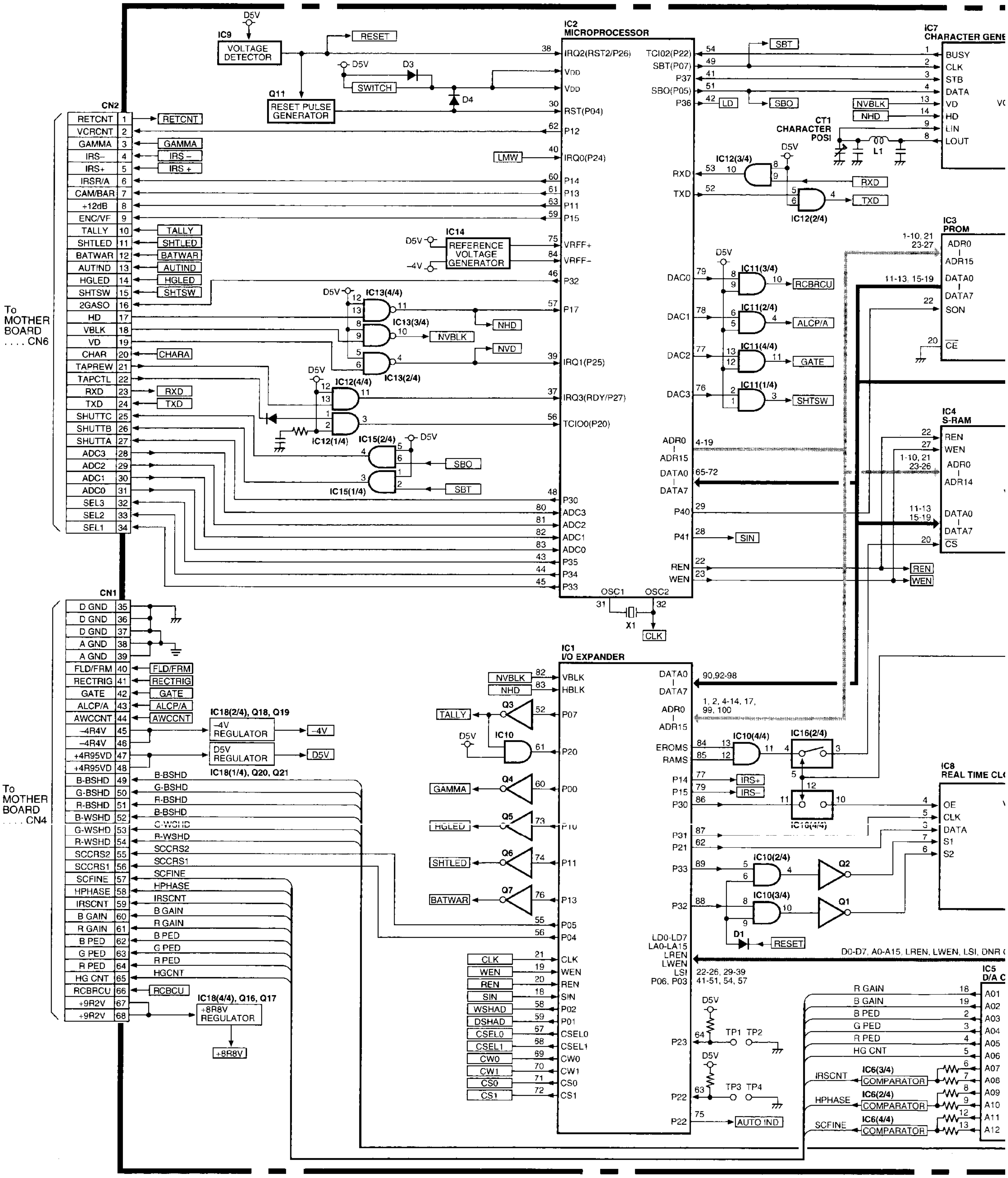
BLOCK DIAGRAM OF MOTHER BOARD


DIGITAL PROCESS BOARD CN1
CN5
1 +7V
2 R-IN
3 G IN
4 B-IN
5 A2R5V
6 A0R5V
7 +4R95VA
8 +4R95VA
9 +4R95VD
10 +4R95VD
11 HD
12 VD
13 V BLK
14 C SYNC
15 DPRGND
16 DPRGND
17 14MHz
18 28MHz
19 DPRGND
20 CBLKIN
21 BFIN
22 PAL
23 DPRGND
24 DPRGND
25 DLCBLO
26 -4R4V
27 SAFETY
28 DBLFOUT
29 DLPALO
30 N.C.
31 NTSYNC
32 VFSYNC
33 DPRGND
34 DPRGND
35 DPRGND
36 MIISYNC
37 AGND
38 AGND
39 NTY
40 NTYGND
41 R-Y GND
42 B-Y GND
43 R-Y IN
44 B-Y IN
45 MII Y
46 MII GND
47 DPR GND
48 DPR GND
49 DPR GND
50 VF Y OUT
DPRGND
AGND
TP6 (GND)
TP7 (14MHz)
14MHz
RGND
28MHz
RGND
SYSTEM CONTROL BOARD CN1
CN4
68 +9R2V
67 +9R2V
66 RCBRCU
65 HGCNT
64 R-PED
63 G-PED
62 B-CED
61 R-GCNT
60 B-GCNT
59 IRSREM
58 HPHASE
57 SCFINE
56 SCCR1
55 SCCR2
54 R-WSHD
53 G-WSHD
52 B-WSHD
51 R-BSHD
50 G-BSHD
49 B-BSHD
48 +4R95VD
47 +4R95VD
46 -4R4V
45 -4R4V
44 AWCCNT
43 ALCP/A
42 GATECNT
41 RECTRG
40 FLD/FRM
39 AGND
38 AGND
37 DPRGND
36 DPRGND
35 DPRGND
RCBRCU
+4R95VA
+4R95VD
-4R4V
SYSTEM CONTROL BOARD CN2
CN6
34 SEL1
33 SEL2
32 SEL3
31 ADC0
30 ADC1
29 ADC2
28 ADC3
27 SHTA
26 SHTB
25 SHTC
24 TXD
23 RXD
22 TAPCTL
21 TAPREW
20 CAMCHR
19 VD
18 V BLK
17 HD
16 2GASO
15 SHTSW
14 HG LED
13 AUTOIND
12 BATWAR
11 SHTLED
10 TALLY
9 ENC/VF
8 +6dB C
7 CAM/BAR
6 IRSR/A
5 1/2 OP
4 1/2 CL
3 GAMMA
2 VCRCNT
1 RETCNT
A
B
C
ADC0
ADC1
ADC2
ADC3
TXD(S)
RXD(S)
VD
HD
HG LED
AUTOIND
SHTLED
TALLY
VCRCNT
RETCNT
POWER BOARD . . . CN1
CN2
1 +7V
2 +7V
3 +7V
4 +9R2V
5 +9R2V
6 COOLER+
7 COOLER+
8 COOLER-
9 COOLER-
10 SW12V
11 SW12V
12 SW12V
13 +4R95VD
14 +4R95VD
15 +4R95VA
16 +4R95VA
17 -4R4V
18 -4R4V
19 STCNT
20 +20R5V
21 +15R5V
22 +15R5V
23 -10R5V
24 -10R5V
25 AGND
26 AGND
27 AGND
28 DPRGND
29 DPRGND
30 DPRGND
31 12VGND
32 12VGND
33 12VGND
34 HD
+7V
SW12V
+4R95VD
+4R95VD
STCNT
+20R5V
+15R5V
+10R5V
AGND
DPRGND
HD
TP8 (GND)
CN1
1 EXT12V
2 EXT12V
3 MIC HOT
4 MIC COLD
5 EXT 12V
6 MIC GND
7 PB AUD
8 PBAUD2CH
9 PBAUDGND
10 PBAUD2GND
11 STCNT
12 VTRTRIG
13 SW12V
14 TALLY
15 S-YOUT
16 S-COUT
17 SVHSYGND
18 SVHSCGND
19 RECTIMER
20 F250DETC
21 +9R2V
22 RETCNT
23 RETYIN
24 N.C.
25 RTY GND
26 N.C.
27 MPX IND
28 SUBTRIG
29 G/LGND
30 TAPREW
31 G/L2IN
32 N.C.
33 -4R4V
34 N.C.
35 Y GND
36 RCU/CAM
37 VSOUT
38 FLM
39 BATWAR
40 VTRWAR
41 TPCTL
42 N.C.
43 N.C.
44 N.C.
45 UNSW12V
46 ANTONIND
47 MIISYNC
48 S-MII
49 UNSW12V
50 N.C.
51 N.C.
52 VIDEO
53 TXD
54 N.C.
55 RXD
56 N.C.
57 VTRCHR
58 N.C.
59 R-YOUT
60 AUDDCCNT
61 12V GND
62 12V GND
63 MIIYOUT
64 MIIGND
65 12V GND
66 12V GND
67 B-YOUT
68 +4R95VA
PBAUD
PBAUD2CH
STCNT
SW12V
TALLY
S-YOUT
S-COUT
RECTIMER
RETCNT
RETYIN
MPXIND
START/STP
SG/L2IN
RCU/CAM
VSOUT
FLM
UNSW12V
ANTONIND
MIISYNC
S-MII
VIDEO
TXD
RXD
VTRCHR
R-YOUT
MIIYOUT
B-YOUT
MICCNT
IC24 SELECTOR
IC21
IC22
+4R95VA
IC16(2/4)
+2.48V
+9R2
SHT LED
D12
VR6 (AUDIO)
CN19
1 EXT12V
2 EXT12V
3 EXT12V
4 12V GND
5 12V GND
6 12V GND
VTRTRIG
+4R95VA
Q1
TRIG
START/STOP
IC13(1/2)
MONO/MULTI
COUNTER
IC10(1/2)
IC11
Q2
IC12
MICHOT
IC9
AMP.
IC8
AUDIO
IC4
IC5
IC3(1/2) SELECTOR
RDX(S)
IC6(1/2)
MONO/MULTI
IC7
IC6(2/2)
MONO/MULTI
RCBRCU
IC3(1/2) SELECTOR
TXD(S)
TXD
+4R95VA
IC1(2/4)
IC1(3/4)
ROPTXD
SW12V
VR5 (BATT)
-4R4V
SW13 (BATTERY INDICATION SWITCH)
+2.48V
ANTONIND
IC16(3/4)
AC-DC CONVERTER
PBAUD
IC16(2/4)
AC-DC CONVERTER
PBAUD2CH
IC25 SELECTOR
IC16(2/4)
ADC2
A
B
C

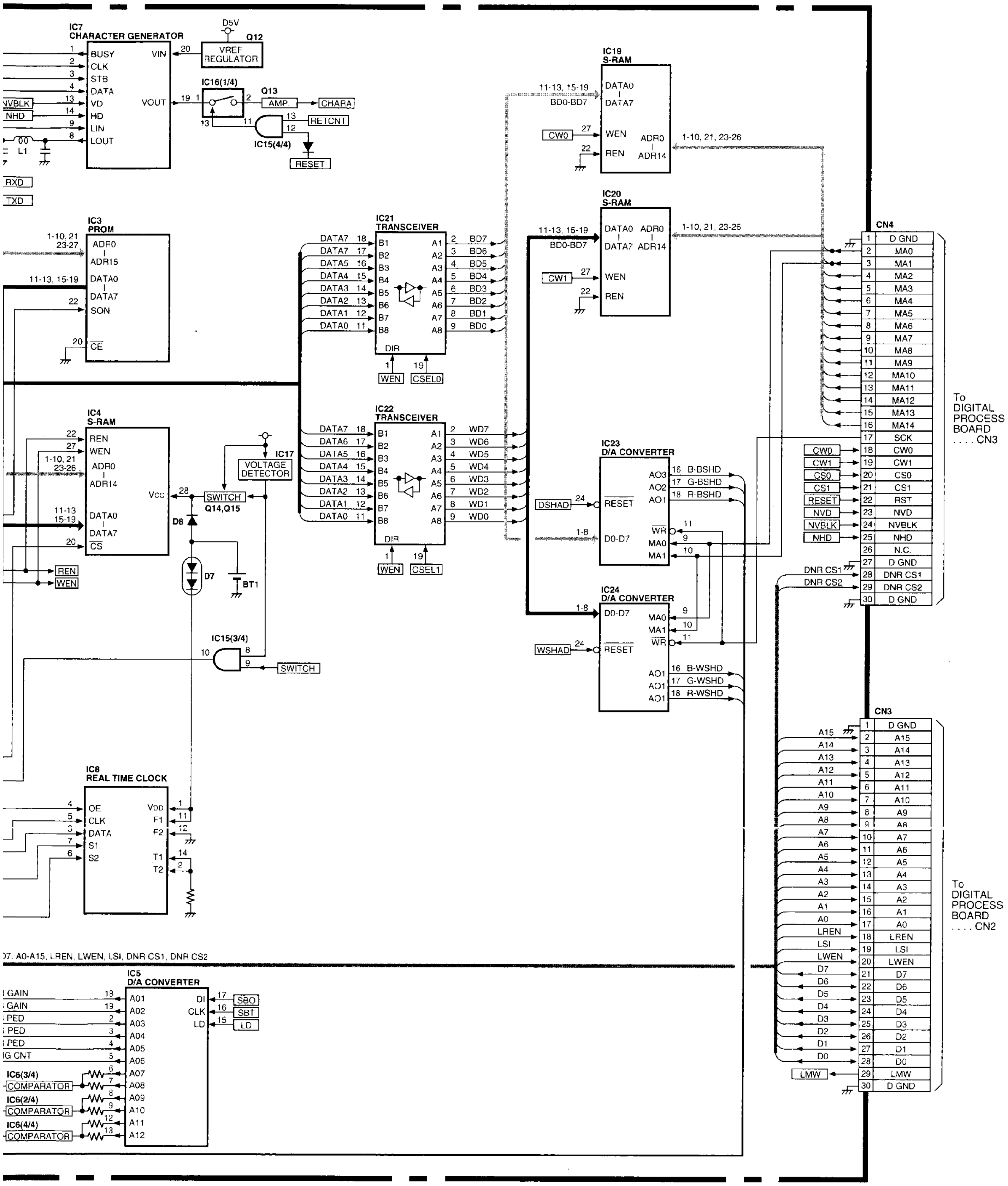

CNT
IC24 SELECTOR
9
10
11
14
12
13
2
15
1
CN101
3 MIC GND
2 MIC COLD
1 MIC HOT
IC21
IC22
TOP TALLY
CN11
3 TOPTALLY
2 A GND
1 SHTTALLY
AGND
IC23
EVF
CN9
VF YOUT
1 VF YOUT
2 Y GND
3 12V GND
4 +12V
5 +9R2V
6 BATALM
7 AUTOIND
8 REC/TALLY
9 SHTLED
10 HGLED
11 5 ST
12 N.C.
+9R2V
SW12V
AUTOIND
HG LED
SHT LED
+4R95VA
IC16(2/4)
+2.48V
D13
D12
SW11 (BACK LIGHT COMPENSATION SWITCH
SW12 ELECTRONIC SHUTTER ON/OFF SWITCH
SPEED
+4R95V
SW10 (SCENE FILE SELECTION SWITCH)
FILE
IND
SW9 (CLEAN DNR SELECTION SWITCH)
SW14 (CHECK BUTTON)
PAGE
SW8 (PAGE SWITCH)
ITEM
SW7 (ITEM/NOISE SUPPRESS SWITCH)
UP
SW6 (UP/ZONE SWITCH)
IC32
S-MII
IC19 SELECTOR
IC18(2/2)
ADC1
A
B
C
SW12V
Q7
RIPPLE FILTER
+4R95VA
BUFFER
MICCNT
Q8,Q9
DOWN
SW5 (DOWN/LEVEL INDICATOR SWITCH)
IC20 SELECTOR
IC18(1/2)
ADC0
DTL
SW4 (DETAIL LEVEL SELECTION SWITCH)
SW3 (HIGH LIGHT CHROMA SWITCH)
USERST
SW2 (USER SET SWITCH)
SW1 (RECORDING TIME RESET BUTTON)
VR3 (T PED)
VR4 (IRIS)
IRIS VR
16(2/4)
ADC2
SIDE SWITCH BOARD (2/2)
CN10
E2
SW4 (POWER SWITCH)
STCONT
UNSW12V
SW12V
1 ST CONT
2 12V IN
3 12V IN
4 12V IN
5 12V OUT
6 12V OUT
7 12V OUT
8 GND
ON
SAVE
OFF

BLOCK DIAGRAM OF SYSTEM

SYSTEM CONTROL BOARD


D5V
IC9
VOLTAGE DETECTOR
RESET
Q11
RESET PULSE GENERATOR
D5V
D3
SWITCH
D4
IC2
MICROPROCESSOR
IRQ2(RST2/P26)
VDD
VDD
RST(P04)
P12
IRQ0(P24)
P14
P13
P11
P15
VRFF+
VRFF−
P32
P17
IRQ1(P25)
IRQ3(RDY/P27)
TCIO0(P20)
P30
ADC3
ADC2
ADC1
ADC0
P35
P34
P33
OSC1
OSC2
X1
CLK
TCI02(P22)
SBT(P07)
P37
SBO(P05)
P36
RXD
TXD
DAC0
DAC1
DAC2
DAC3
ADR0
ADR15
DATA0
DATA7
P40
P41
REN
WEN
SBT
LD
SBO
NVBLK
NHD
CT1
CHARACTER POSI
L1
IC12(3/4)
IC12(2/4)
RXD
TXD
IC7
CHARACTER GENE
BUSY
CLK
STB
DATA
VD
HD
LIN
LOUT
IC3
PROM
ADR0
ADR15
DATA0
DATA7
SON
CE
1-10, 21
23-27
11-13, 15-19
IC4
S-RAM
REN
WEN
ADR0
ADR14
DATA0
DATA7
CS
1-10, 21
23-26
11-13
15-19
4-19
65-72
SIN
REN
WEN
IC11(3/4)
IC11(2/4)
IC11(4/4)
IC11(1/4)
RCBRCU
ALCP/A
GATE
SHTSW
IC14
REFERENCE VOLTAGE GENERATOR
D5V
−4V
LMW
IC13(4/4)
IC13(3/4)
IC13(2/4)
NHD
NVBLK
NVD
IC12(4/4)
IC12(1/4)
IC15(2/4)
IC15(1/4)
SBO
SBT
CN2
RETCNT 1
VCRCNT 2
GAMMA 3
IRS− 4
IRS+ 5
IRSR/A 6
CAM/BAR 7
+12dB 8
ENC/VF 9
TALLY 10
SHTLED 11
BATWAR 12
AUTIND 13
HGLED 14
SHTSW 15
2GASO 16
HD 17
VBLK 18
VD 19
CHAR 20
TAPREW 21
TAPCTL 22
RXD 23
TXD 24
SHUTTC 25
SHUTTB 26
SHUTTA 27
ADC3 28
ADC2 29
ADC1 30
ADC0 31
SEL3 32
SEL2 33
SEL1 34
RETCNT
GAMMA
IRS −
IRS +
TALLY
SHTLED
BATWAR
AUTIND
HGLED
SHTSW
CHARA
RXD
TXD
To MOTHER BOARD CN6
CN1
D GND 35
D GND 36
D GND 37
A GND 38
A GND 39
FLD/FRM 40
RECTRIG 41
GATE 42
ALCP/A 43
AWCCNT 44
−4R4V 45
−4R4V 46
+4R95VD 47
+4R95VD 48
B-BSHD 49
G-BSHD 50
R-BSHD 51
B-WSHD 52
G-WSHD 53
R-WSHD 54
SCCRS2 55
SCCRS1 56
SCFINE 57
HPHASE 58
IRSCNT 59
B GAIN 60
R GAIN 61
B PED 62
G PED 63
R PED 64
HG CNT 65
RCBRCU 66
+9R2V 67
+9R2V 68
To MOTHER BOARD CN4
FLD/FRM
RECTRIG
GATE
ALCP/A
AWCCNT
IC18(2/4), Q18, Q19
−4V REGULATOR
−4V
D5V REGULATOR
D5V
IC18(1/4), Q20, Q21
IC18(4/4), Q16, Q17
+8R8V REGULATOR
+8R8V
RCBCU
IC1
I/O EXPANDER
VBLK
HBLK
P07
P20
P00
P10
P11
P13
P05
P04
CLK
WEN
REN
SIN
P02
P01
CSEL0
CSEL1
CW0
CW1
CS0
CS1
NVBLK
NHD
TALLY
Q3
D5V
IC10
GAMMA
Q4
HGLED
Q5
SHTLED
Q6
BATWAR
Q7
CLK
WEN
REN
SIN
WSHAD
DSHAD
CSEL0
CSEL1
CW0
CW1
CS0
CS1
DATA0
DATA7
90,92-98
ADR0
ADR15
1, 2, 4-14, 17, 99, 100
EROMS
RAMS
IC10(4/4)
IC16(2/4)
IC16(4/4)
P14
P15
P30
IRS+
IRS−
P31
P21
P33
P32
IC10(2/4)
IC10(3/4)
Q2
Q1
D1
RESET
LD0-LD7
LA0-LA15
LREN
LWEN
LSI
P06, P03
22-26, 29-39
41-51, 54, 57
D0-D7, A0-A15, LREN, LWEN, LSI, DNR
P23
P22
P22
D5V
TP1
TP2
TP3
TP4
AUTO IND
IC8
REAL TIME CL
OE
CLK
DATA
S1
S2
IC5
D/A C
R GAIN
B GAIN
B PED
G PED
R PED
HG CNT
IRSCNT
HPHASE
SCFINE
IC6(3/4)
IC6(2/4)
IC6(4/4)
COMPARATOR
COMPARATOR
COMPARATOR
A01
A02
A03
A04
A05
A06
A07
A08
A09
A10
A11
A12

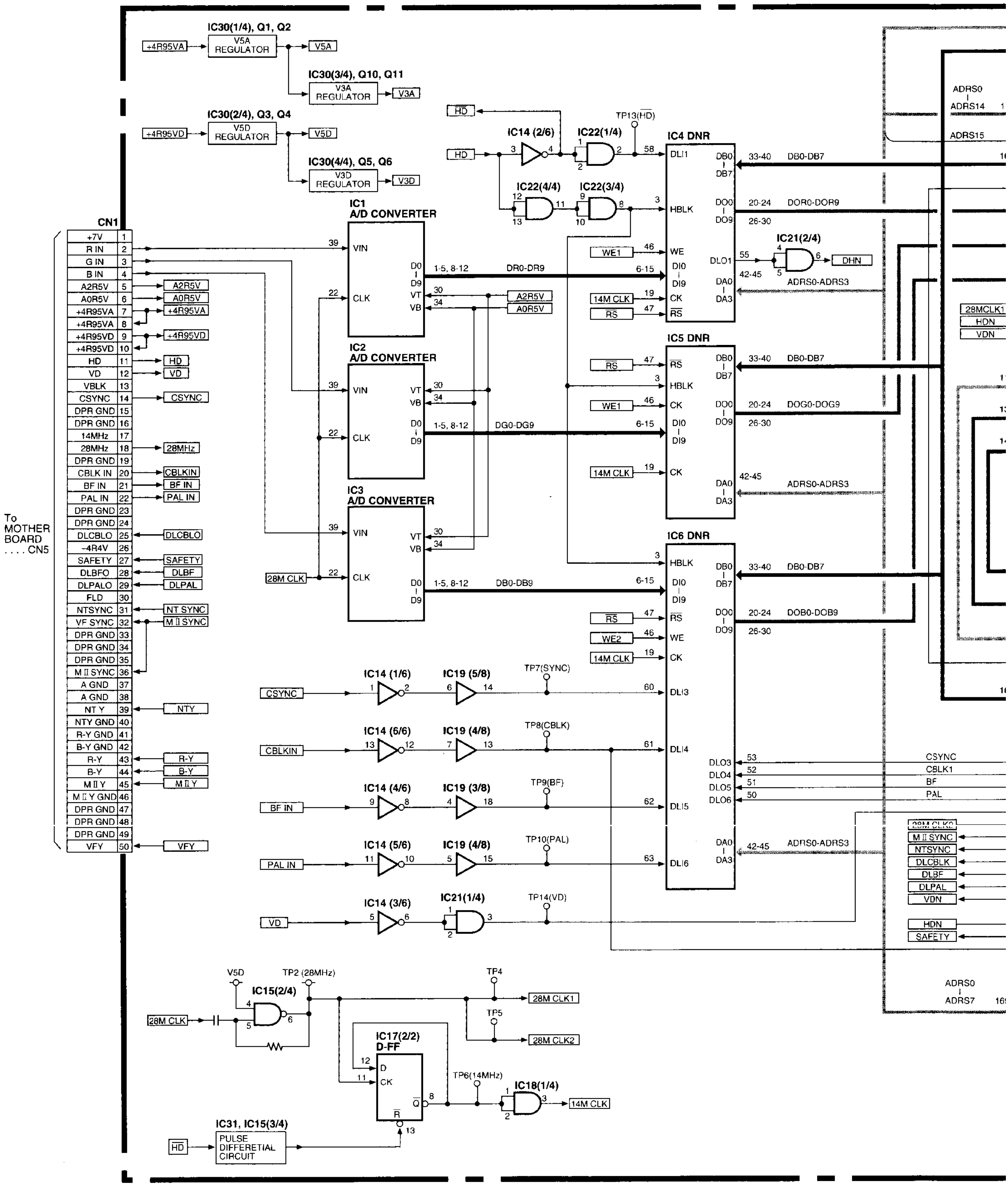
SYSTEM CONTROL BOARD



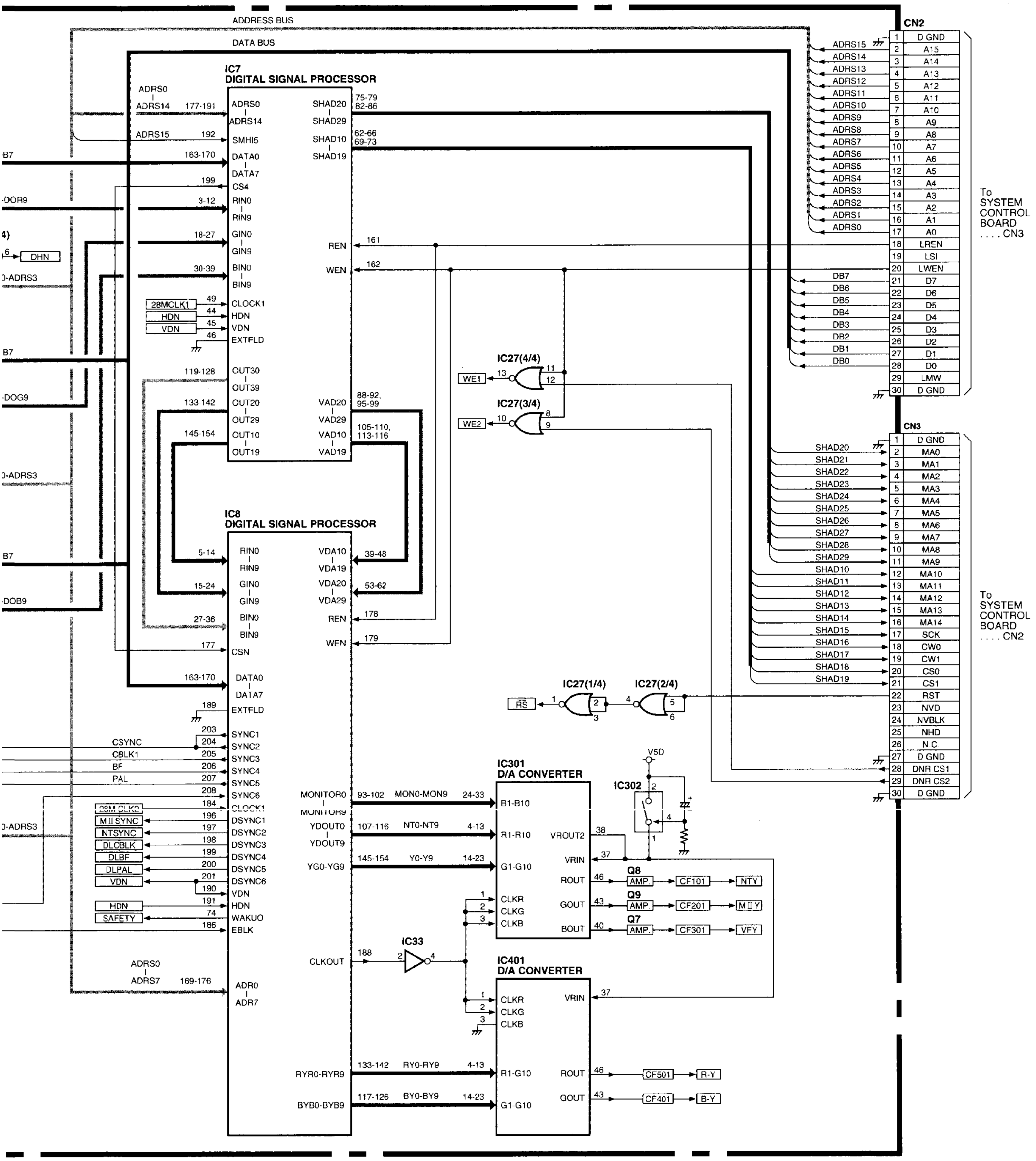
IC7
CHARACTER GENERATOR
BUSY
CLK
STB
DATA
VD
HD
LIN
LOUT
VIN
VOUT
NVBLK
NHD
L1
D5V
Q12
VREF REGULATOR
IC16(1/4)
Q13
AMP.
CHARA
RETCNT
IC15(4/4)
RESET
RXD
TXD
IC3
PROM
1-10, 21 23-27
ADR0
ADR15
11-13, 15-19
DATA0
DATA7
SON
CE
IC4
S-RAM
REN
WEN
1-10, 21 23-26
ADR0
ADR14
11-13 15-19
DATA0
DATA7
CS
Vcc
REN
WEN
IC17
VOLTAGE DETECTOR
SWITCH
Q14,Q15
D6
D7
BT1
IC15(3/4)
SWITCH
IC21
TRANSCEIVER
DATA7 … DATA0
B1 … B8
A1 … A8
BD7 … BD0
DIR
WEN
CSEL0
IC22
TRANSCEIVER
WD7 … WD0
WEN
CSEL1
IC19
S-RAM
11-13, 15-19
BD0-BD7
DATA0
DATA7
CW0
WEN
REN
ADR0
ADR14
1-10, 21, 23-26
IC20
S-RAM
CW1
IC23
D/A CONVERTER
B-BSHD
G-BSHD
R-BSHD
AO3
AO2
AO1
DSHAD
RESET
D0-D7
WR
MA0
MA1
IC24
D/A CONVERTER
B-WSHD
G-WSHD
R-WSHD
WSHAD
IC8
REAL TIME CLOCK
OE
CLK
DATA
S1
S2
VDD
F1
F2
T1
T2
D7. A0-A15, LREN, LWEN, LSI, DNR CS1, DNR CS2
IC5
D/A CONVERTER
GAIN
GAIN
PED
PED
PED
G CNT
IC6(3/4) COMPARATOR
IC6(2/4) COMPARATOR
IC6(4/4) COMPARATOR
A01 … A12
DI
CLK
LD
SBO
SBT
LD
CN4
1 D GND
2 MA0
3 MA1
4 MA2
5 MA3
6 MA4
7 MA5
8 MA6
9 MA7
10 MA8
11 MA9
12 MA10
13 MA11
14 MA12
15 MA13
16 MA14
17 SCK
18 CW0
19 CW1
20 CS0
21 CS1
22 RST
23 NVD
24 NVBLK
25 NHD
26 N.C.
27 D GND
28 DNR CS1
29 DNR CS2
30 D GND
CW0
CW1
CS0
CS1
RESET
NVD
NVBLK
NHD
DNR CS1
DNR CS2
To DIGITAL PROCESS BOARD CN3
CN3
1 D GND
2 A15
3 A14
4 A13
5 A12
6 A11
7 A10
8 A9
9 A8
10 A7
11 A6
12 A5
13 A4
14 A3
15 A2
16 A1
17 A0
18 LREN
19 LSI
20 LWEN
21 D7
22 D6
23 D5
24 D4
25 D3
26 D2
27 D1
28 D0
29 LMW
30 D GND
LMW
To DIGITAL PROCESS BOARD CN2

BLOCK DIAGRAM OF DIGITA

DIGITAL PROCESS BOARD

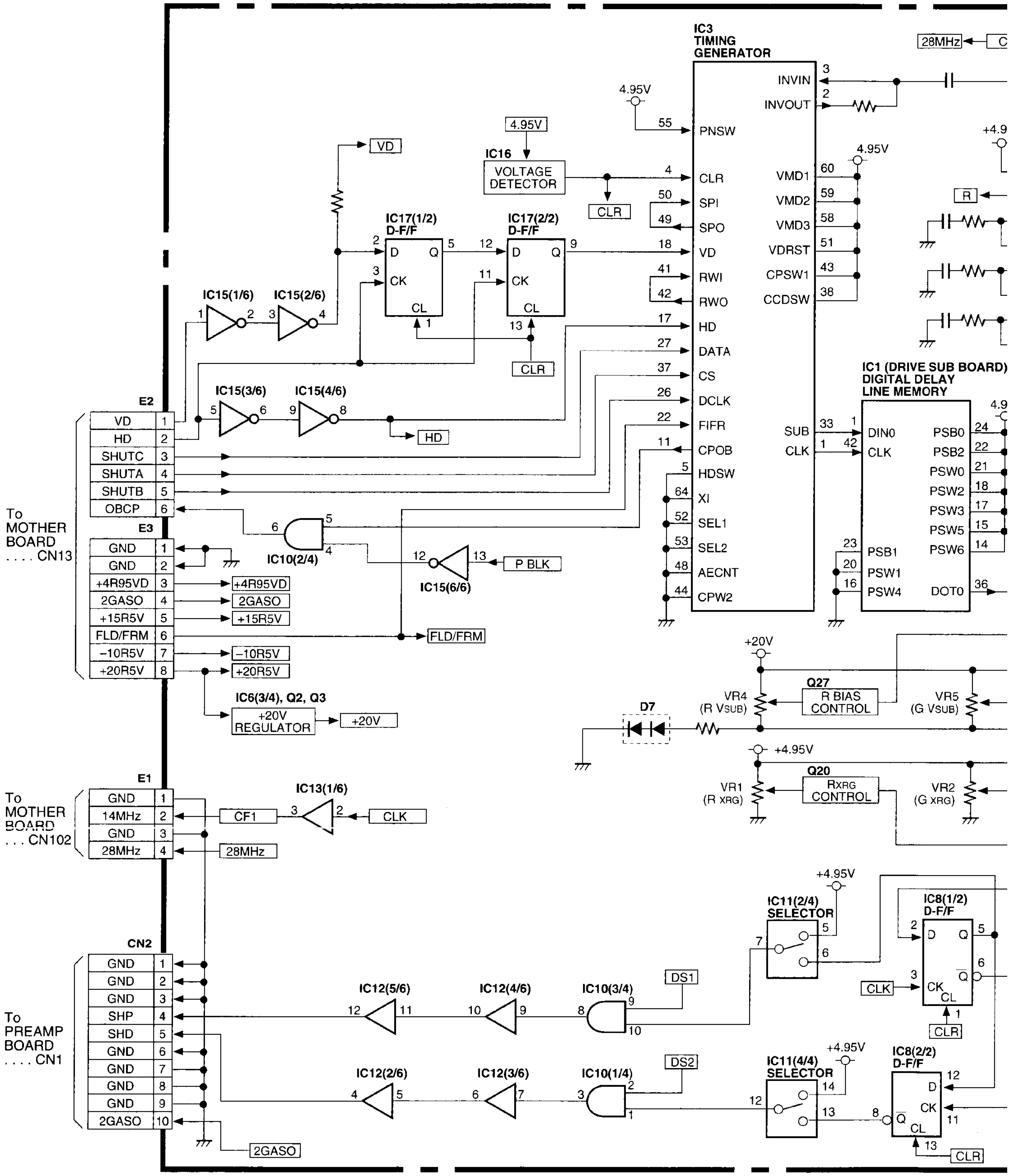

IC30(1/4), Q1, Q2
+4R95VA
V5A REGULATOR
V5A
IC30(3/4), Q10, Q11
V3A REGULATOR
V3A
IC30(2/4), Q3, Q4
+4R95VD
V5D REGULATOR
V5D
IC30(4/4), Q5, Q6
V3D REGULATOR
V3D
CN1
1 +7V
2 R IN
3 G IN
4 B IN
5 A2R5V
6 A0R5V
7 +4R95VA
8 +4R95VA
9 +4R95VD
10 +4R95VD
11 HD
12 VD
13 VBLK
14 CSYNC
15 DPR GND
16 DPR GND
17 14MHz
18 28MHz
19 DPR GND
20 CBLK IN
21 BF IN
22 PAL IN
23 DPR GND
24 DPR GND
25 DLCBLO
26 -4R4V
27 SAFETY
28 DLBFO
29 DLPALO
30 FLD
31 NTSYNC
32 VF SYNC
33 DPR GND
34 DPR GND
35 DPR GND
36 M II SYNC
37 A GND
38 A GND
39 NT Y
40 NTY GND
41 R-Y GND
42 B-Y GND
43 R-Y
44 B-Y
45 M II Y
46 M II Y GND
47 DPR GND
48 DPR GND
49 DPR GND
50 VFY
To MOTHER BOARD CN5
A2R5V
A0R5V
+4R95VA
+4R95VD
HD
VD
CSYNC
28MHz
CBLKIN
BF IN
PAL IN
DLCBLO
SAFETY
DLBF
DLPAL
NT SYNC
M II SYNC
NTY
R-Y
B-Y
M II Y
VFY
IC1 A/D CONVERTER
IC2 A/D CONVERTER
IC3 A/D CONVERTER
VIN
CLK
D0 D9
VT
VB
1-5, 8-12
DR0-DR9
DG0-DG9
DB0-DB9
28M CLK
HD
TP13(HD)
IC14 (2/6)
IC22(1/4)
IC22(4/4)
IC22(3/4)
IC4 DNR
IC5 DNR
IC6 DNR
DLI1
HBLK
WE
DI0 DI9
CK
RS
WE1
WE2
14M CLK
RS
DB0 DB7
DO0 DO9
DLO1
DA0 DA3
33-40 DB0-DB7
20-24 DOR0-DOR9
20-24 DOG0-DOG9
20-24 DOB0-DOB9
26-30
42-45 ADRS0-ADRS3
IC21(2/4)
DHN
ADRS0 ADRS14
ADRS15
28MCLK1
HDN
VDN
IC14 (1/6)
IC19 (5/8)
TP7(SYNC)
IC14 (6/6)
IC19 (4/8)
TP8(CBLK)
IC14 (4/6)
IC19 (3/8)
TP9(BF)
IC14 (5/6)
IC19 (4/8)
TP10(PAL)
IC14 (3/6)
IC21(1/4)
TP14(VD)
CSYNC
CBLKIN
BF IN
PAL IN
VD
DLI3
DLI4
DLI5
DLI6
DLO3
DLO4
DLO5
DLO6
CSYNC
CBLK1
BF
PAL
28M CLK2
M II SYNC
NTSYNC
DLCBLK
DLBF
DLPAL
VDN
HDN
SAFETY
ADRS0 ADRS7
V5D
TP2 (28MHz)
IC15(2/4)
28M CLK
TP4
28M CLK1
TP5
28M CLK2
IC17(2/2) D-FF
D
CK
Q
R
TP6(14MHz)
IC18(1/4)
14M CLK
IC31, IC15(3/4)
PULSE DIFFERETIAL CIRCUIT
HD

OF DIGITAL PROCESS BOARD


ADDRESS BUS
DATA BUS
IC7
DIGITAL SIGNAL PROCESSOR
ADRS0 - ADRS14
177-191
ADRS0 - ADRS14
ADRS15
192
SMHI5
B7
163-170
DATA0 - DATA7
199
CS4
DOR9
3-12
RIN0 - RIN9
18-27
GIN0 - GIN9
DHN
ADRS3
30-39
BIN0 - BIN9
28MCLK1
49
CLOCK1
HDN
44
HDN
VDN
45
VDN
46
EXTFLD
119-128
OUT30 - OUT39
DOG9
133-142
OUT20 - OUT29
145-154
OUT10 - OUT19
SHAD20 - SHAD29
75-79
82-86
SHAD10 - SHAD19
62-66
69-73
REN
161
WEN
162
VAD20 - VAD29
88-92,
95-99
VAD10 - VAD19
105-110,
113-116
IC8
DIGITAL SIGNAL PROCESSOR
5-14
RIN0 - RIN9
15-24
GIN0 - GIN9
27-36
BIN0 - BIN9
DOB9
177
CSN
163-170
DATA0 - DATA7
189
EXTFLD
VDA10 - VDA19
39-48
VDA20 - VDA29
53-62
REN
178
WEN
179
CSYNC
CBLK1
BF
PAL
203
204
205
206
207
208
SYNC1
SYNC2
SYNC3
SYNC4
SYNC5
SYNC6
28M CLK2
184
CLOCK1
M II SYNC
196
DSYNC1
NTSYNC
197
DSYNC2
DLCBLK
198
DSYNC3
DLBF
199
DSYNC4
DLPAL
200
DSYNC5
VDN
201
DSYNC6
190
VDN
HDN
191
HDN
SAFETY
74
WAKUO
186
EBLK
ADRS0 - ADRS7
169-176
ADR0 - ADR7
MONITOR0 - MONITOR9
93-102
MON0-MON9
24-33
YDOUT0 - YDOUT9
107-116
NT0-NT9
4-13
YG0-YG9
145-154
Y0-Y9
14-23
CLKOUT
188
IC33
2
4
RYR0-RYR9
133-142
RY0-RY9
4-13
BYB0-BYB9
117-126
BY0-BY9
14-23
IC301
D/A CONVERTER
B1-B10
R1-R10
G1-G10
VROUT2
38
VRIN
37
CLKR
CLKG
CLKB
ROUT
46
GOUT
43
BOUT
40
Q8
AMP
CF101
NTY
Q9
AMP
CF201
M II Y
Q7
AMP
CF301
VFY
IC302
V5D
IC401
D/A CONVERTER
CLKR
CLKG
CLKB
VRIN
37
R1-G10
G1-G10
ROUT
46
CF501
R-Y
GOUT
43
CF401
B-Y
IC27(4/4)
WE1
13
11
12
IC27(3/4)
WE2
10
8
9
IC27(1/4)
RS
1
2
3
IC27(2/4)
4
5
6
CN2
1 D GND
2 A15
3 A14
4 A13
5 A12
6 A11
7 A10
8 A9
9 A8
10 A7
11 A6
12 A5
13 A4
14 A3
15 A2
16 A1
17 A0
18 LREN
19 LSI
20 LWEN
21 D7
22 D6
23 D5
24 D4
25 D3
26 D2
27 D1
28 D0
29 LMW
30 D GND
ADRS15
ADRS14
ADRS13
ADRS12
ADRS11
ADRS10
ADRS9
ADRS8
ADRS7
ADRS6
ADRS5
ADRS4
ADRS3
ADRS2
ADRS1
ADRS0
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
To
SYSTEM
CONTROL
BOARD
. . . . CN3
CN3
1 D GND
2 MA0
3 MA1
4 MA2
5 MA3
6 MA4
7 MA5
8 MA6
9 MA7
10 MA8
11 MA9
12 MA10
13 MA11
14 MA12
15 MA13
16 MA14
17 SCK
18 CW0
19 CW1
20 CS0
21 CS1
22 RST
23 NVD
24 NVBLK
25 NHD
26 N.C.
27 D GND
28 DNR CS1
29 DNR CS2
30 D GND
SHAD20
SHAD21
SHAD22
SHAD23
SHAD24
SHAD25
SHAD26
SHAD27
SHAD28
SHAD29
SHAD10
SHAD11
SHAD12
SHAD13
SHAD14
SHAD15
SHAD16
SHAD17
SHAD18
SHAD19
To
SYSTEM
CONTROL
BOARD
. . . . CN2

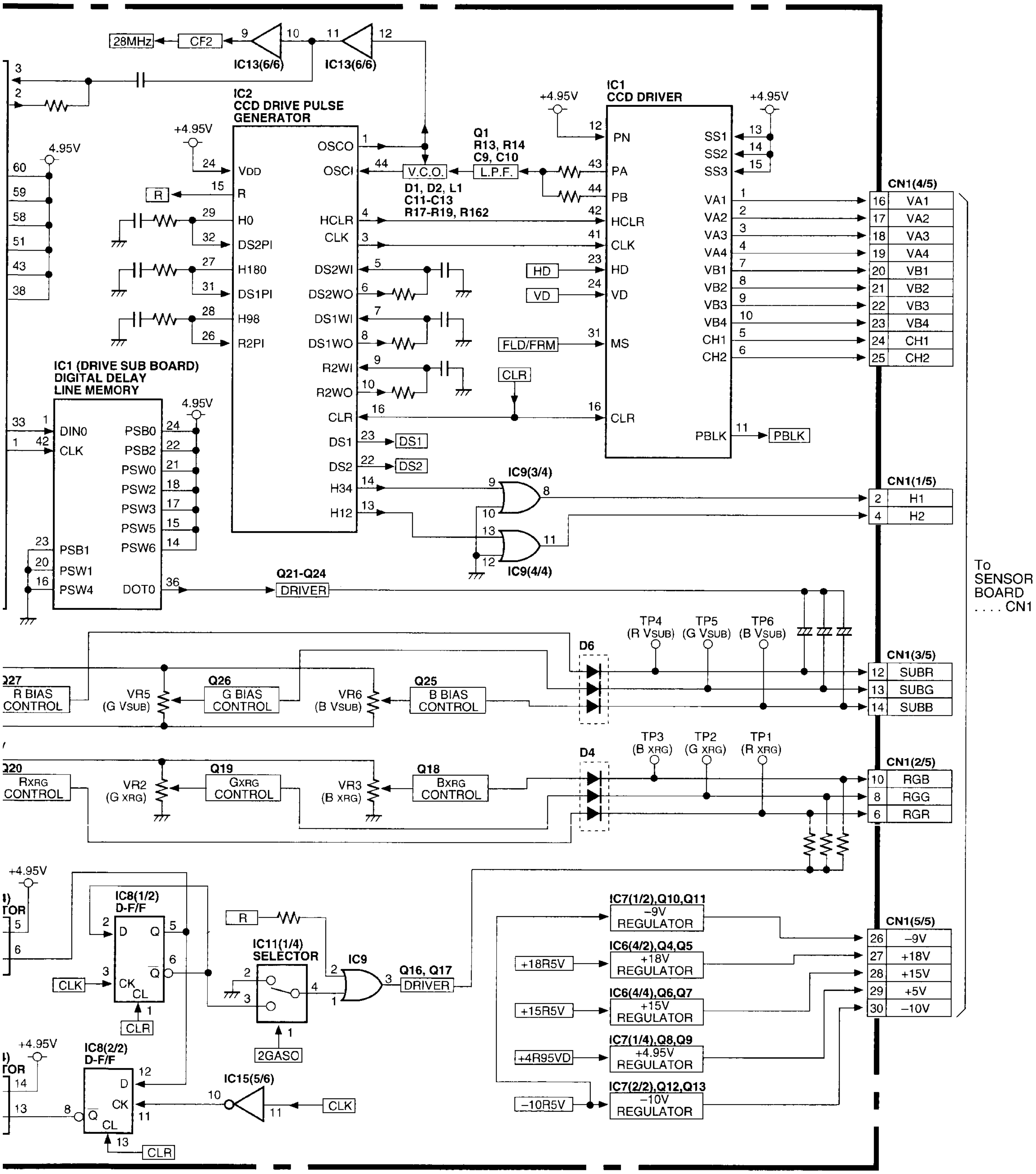
BLOCK DIAGRAM OF

DRIVE BOARD



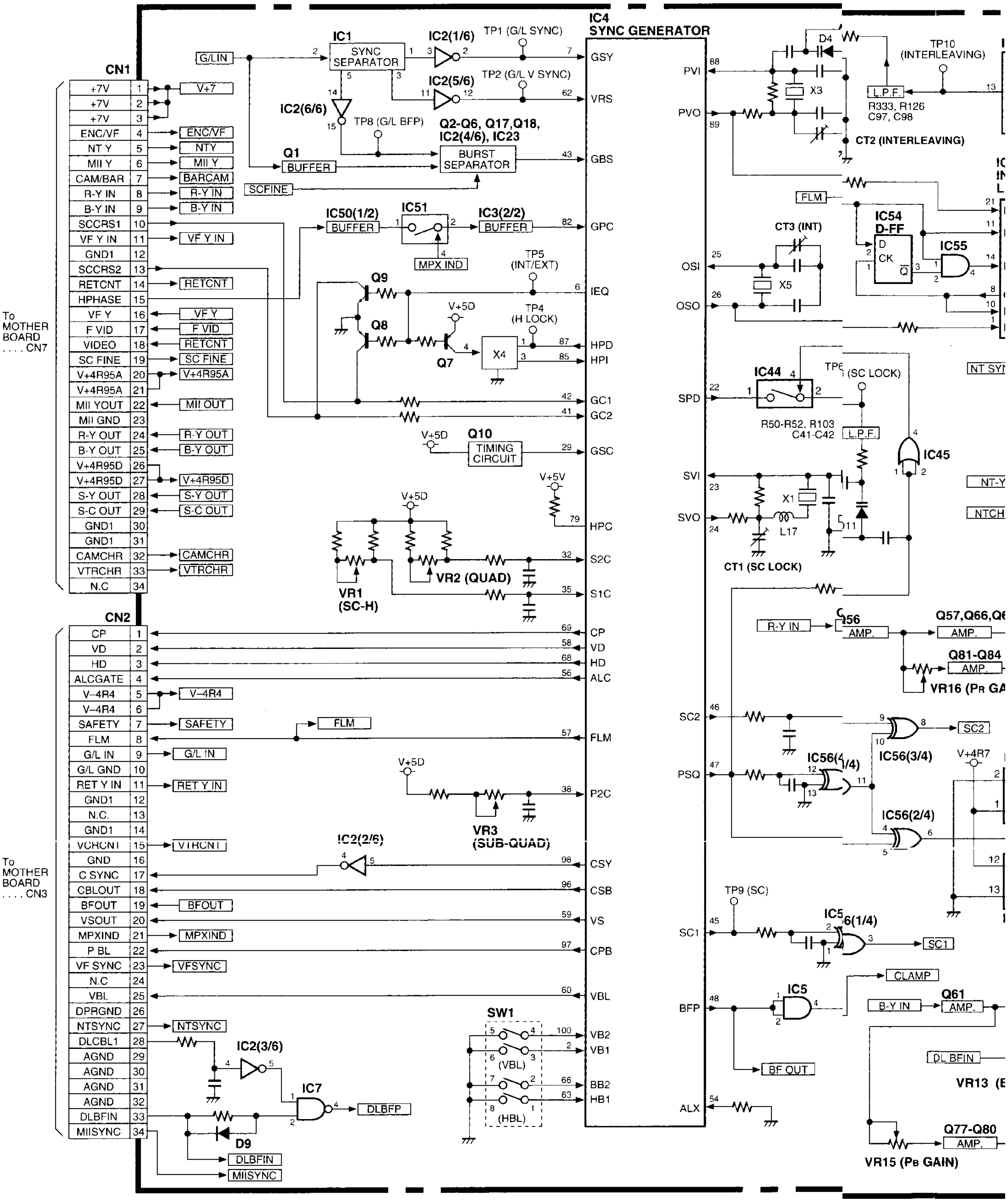
IC3
TIMING GENERATOR
INVIN
INVOUT
PNSW
CLR
SPI
SPO
VD
RWI
RWO
HD
DATA
CS
DCLK
FIFR
CPOB
HDSW
XI
SEL1
SEL2
AECNT
CPW2
VMD1
VMD2
VMD3
VDRST
CPSW1
CCDSW
SUB
CLK
28MHz
4.95V
+4.9
R
IC16
VOLTAGE DETECTOR
CLR
VD
IC17(1/2) D-F/F
IC17(2/2) D-F/F
D
Q
CK
CL
IC15(1/6)
IC15(2/6)
IC15(3/6)
IC15(4/6)
IC15(6/6)
HD
P BLK
IC10(2/4)
IC1 (DRIVE SUB BOARD) DIGITAL DELAY LINE MEMORY
DIN0
PSB0
PSB2
PSW0
PSW2
PSW3
PSW5
PSW6
PSB1
PSW1
PSW4
DOT0
E2
VD
HD
SHUTC
SHUTA
SHUTB
OBCP
To MOTHER BOARD CN13
E3
GND
+4R95VD
2GASO
+15R5V
FLD/FRM
-10R5V
+20R5V
IC6(3/4), Q2, Q3
+20V REGULATOR
+20V
Q27
R BIAS CONTROL
VR4 (R VSUB)
VR5 (G VSUB)
D7
Q20
RXRG CONTROL
VR1 (R XRG)
VR2 (G XRG)
E1
To MOTHER BOARD . . . CN102
14MHz
28MHz
CF1
IC13(1/6)
CLK
CN2
To PREAMP BOARD CN1
SHP
SHD
2GASO
IC12(5/6)
IC12(4/6)
IC12(2/6)
IC12(3/6)
IC10(3/4)
IC10(1/4)
DS1
DS2
IC11(2/4) SELECTOR
IC11(4/4) SELECTOR
IC8(1/2) D-F/F
IC8(2/2) D-F/F

AGRAM OF DRIVE BOARD

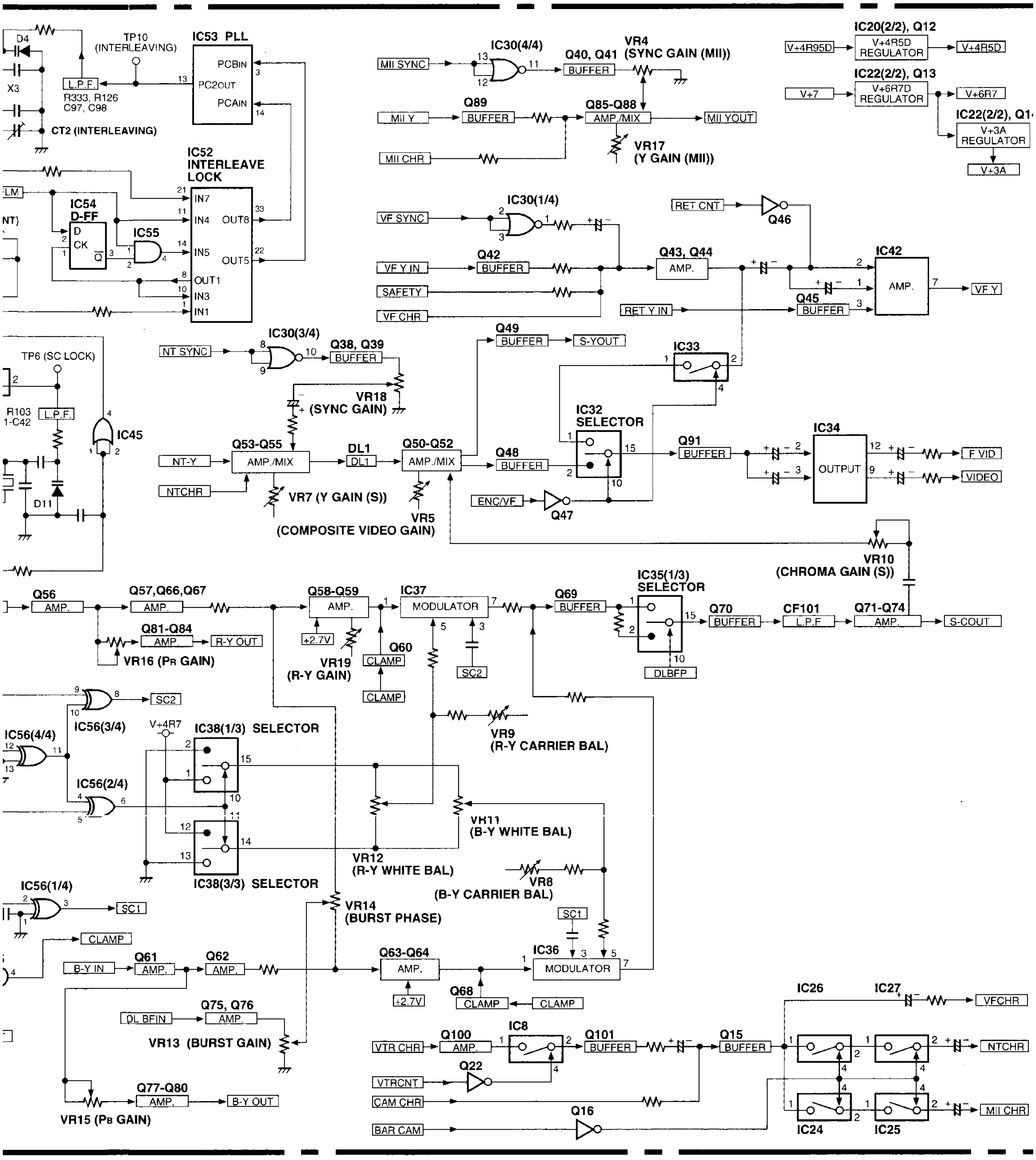

28MHz
CF2
IC13(6/6)
IC13(6/6)
IC2
CCD DRIVE PULSE
GENERATOR
+4.95V
VDD
R
H0
DS2PI
H180
DS1PI
H98
R2PI
OSCO
OSCI
HCLR
CLK
DS2WI
DS2WO
DS1WI
DS1WO
R2WI
R2WO
CLR
DS1
DS2
H34
H12
Q1
R13, R14
C9, C10
V.C.O.
L.P.F.
D1, D2, L1
C11-C13
R17-R19, R162
IC1
CCD DRIVER
PN
PA
PB
HCLR
CLK
HD
VD
MS
CLR
SS1
SS2
SS3
VA1
VA2
VA3
VA4
VB1
VB2
VB3
VB4
CH1
CH2
PBLK
FLD/FRM
CN1(4/5)
16 VA1
17 VA2
18 VA3
19 VA4
20 VB1
21 VB2
22 VB3
23 VB4
24 CH1
25 CH2
IC1 (DRIVE SUB BOARD)
DIGITAL DELAY
LINE MEMORY
DIN0
CLK
PSB0
PSB2
PSW0
PSW2
PSW3
PSW5
PSW6
PSB1
PSW1
PSW4
DOT0
Q21-Q24
DRIVER
IC9(3/4)
IC9(4/4)
CN1(1/5)
2 H1
4 H2
To
SENSOR
BOARD
. . . . CN1
TP4
(R VSUB)
TP5
(G VSUB)
TP6
(B VSUB)
D6
Q27
R BIAS
CONTROL
VR5
(G VSUB)
Q26
G BIAS
CONTROL
VR6
(B VSUB)
Q25
B BIAS
CONTROL
CN1(3/5)
12 SUBR
13 SUBG
14 SUBB
TP3
(B XRG)
TP2
(G XRG)
TP1
(R XRG)
D4
Q20
RXRG
CONTROL
VR2
(G XRG)
Q19
GXRG
CONTROL
VR3
(B XRG)
Q18
BXRG
CONTROL
CN1(2/5)
10 RGB
8 RGG
6 RGR
+4.95V
TOR
IC8(1/2)
D-F/F
D
Q
CK
CL
CLK
CLR
R
IC11(1/4)
SELECTOR
2GASO
IC9
Q16, Q17
DRIVER
IC8(2/2)
D-F/F
IC15(5/6)
CLK
CLR
IC7(1/2),Q10,Q11
−9V
REGULATOR
IC6(4/2),Q4,Q5
+18V
REGULATOR
+18R5V
IC6(4/4),Q6,Q7
+15V
REGULATOR
+15R5V
IC7(1/4),Q8,Q9
+4.95V
REGULATOR
+4R95VD
IC7(2/2),Q12,Q13
−10V
REGULATOR
−10R5V
CN1(5/5)
26 −9V
27 +18V
28 +15V
29 +5V
30 −10V

BLOCK DIAGRAM OF SYN

SYNC/ENCODER BOARD

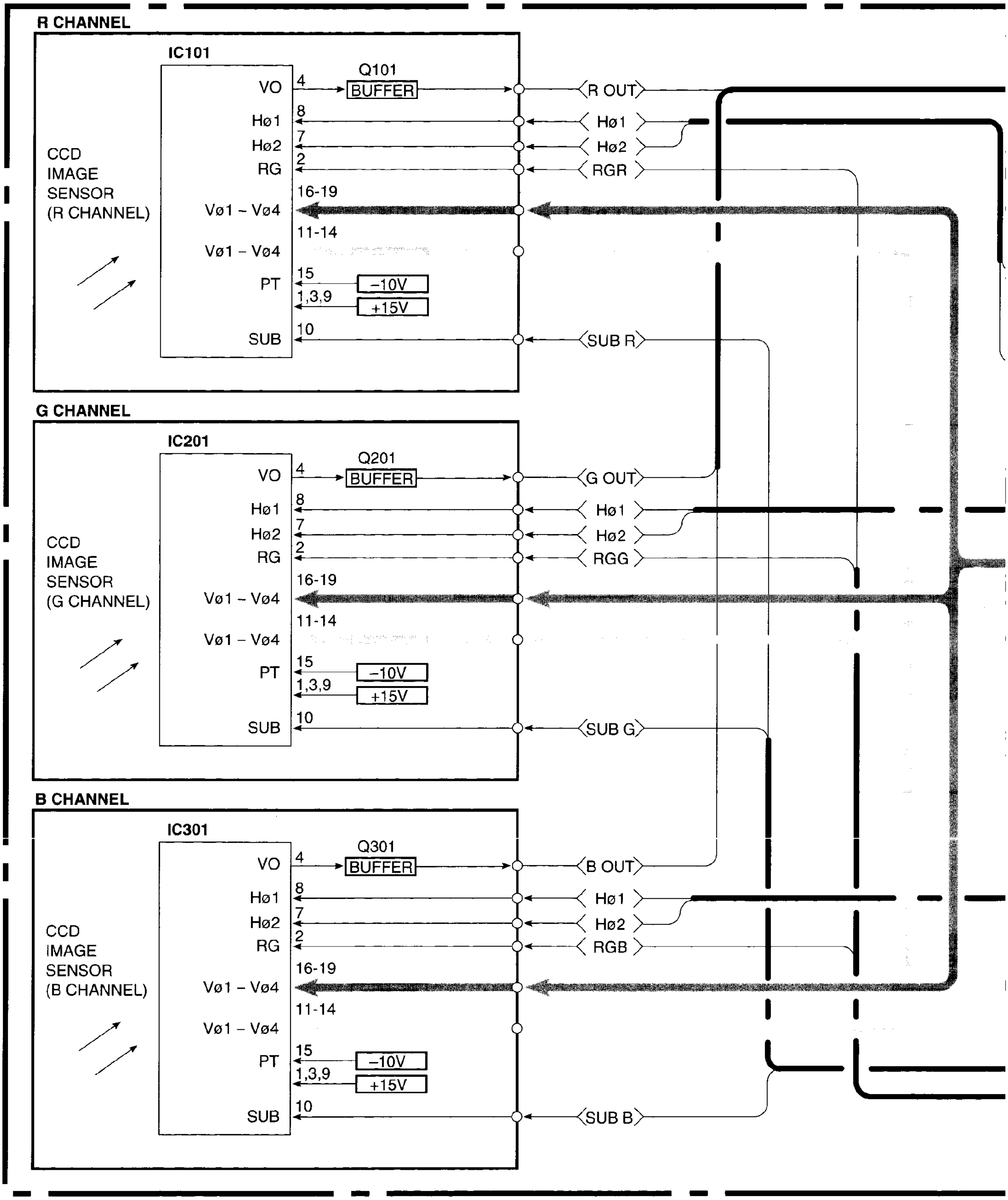

CN1
+7V 1
+7V 2
+7V 3
ENC/VF 4
NT Y 5
MII Y 6
CAM/BAR 7
R-Y IN 8
B-Y IN 9
SCCRS1 10
VF Y IN 11
GND1 12
SCCRS2 13
RETCNT 14
HPHASE 15
VF Y 16
F VID 17
VIDEO 18
SC FINE 19
V+4R95A 20
V+4R95A 21
MII YOUT 22
MII GND 23
R-Y OUT 24
B-Y OUT 25
V+4R95D 26
V+4R95D 27
S-Y OUT 28
S-C OUT 29
GND1 30
GND1 31
CAMCHR 32
VTRCHR 33
N.C 34
To MOTHER BOARD CN7
V+7
ENC/VF
NTY
MII Y
BARCAM
R-Y IN
B-Y IN
VF Y IN
RETCNT
VF Y
F VID
RETCNT
SC FINE
V+4R95A
MII OUT
R-Y OUT
B-Y OUT
V+4R95D
S-Y OUT
S-C OUT
CAMCHR
VTRCHR
CN2
CP 1
VD 2
HD 3
ALCGATE 4
V-4R4 5
V-4R4 6
SAFETY 7
FLM 8
G/L IN 9
G/L GND 10
RET Y IN 11
GND1 12
N.C. 13
GND1 14
VCHCNT 15
GND 16
C SYNC 17
CBLOUT 18
BFOUT 19
VSOUT 20
MPXIND 21
P BL 22
VF SYNC 23
N.C 24
VBL 25
DPRGND 26
NTSYNC 27
DLCBL1 28
AGND 29
AGND 30
AGND 31
AGND 32
DLBFIN 33
MIISYNC 34
To MOTHER BOARD CN3
V-4R4
SAFETY
FLM
G/L IN
RET Y IN
VTRCNT
BFOUT
MPXIND
VFSYNC
NTSYNC
DLBFP
DLBFIN
MIISYNC
D9
IC7
IC2(3/6)
IC2(2/6)
G/LIN
IC1 SYNC SEPARATOR
IC2(1/6)
TP1 (G/L SYNC)
IC2(5/6)
TP2 (G/L V SYNC)
IC2(6/6)
TP8 (G/L BFP)
Q1 BUFFER
Q2-Q6, Q17,Q18, IC2(4/6), IC23
BURST SEPARATOR
SCFINE
IC50(1/2) BUFFER
IC51
IC3(2/2) BUFFER
MPX IND
TP5 (INT/EXT)
Q9
Q8
Q7
V+5D
TP4 (H LOCK)
X4
Q10 TIMING CIRCUIT
V+5V
V+5D
VR1 (SC-H)
VR2 (QUAD)
V+5D
VR3 (SUB-QUAD)
SW1
(VBL)
(HBL)
IC4 SYNC GENERATOR
GSY
VRS
GBS
GPC
IEQ
HPD
HPI
GC1
GC2
GSC
HPC
S2C
S1C
CP
VD
HD
ALC
FLM
P2C
CSY
CSB
VS
CPB
VBL
VB2
VB1
BB2
HB1
PVI
PVO
OSI
OSO
SPD
SVI
SVO
SC2
PSQ
SC1
BFP
ALX
D4
X3
TP10 (INTERLEAVING)
L.P.F.
R333, R126 C97, C98
CT2 (INTERLEAVING)
FLM
CT3 (INT)
X5
IC54 D-FF
IC55
IC44
TP6 (SC LOCK)
R50-R52, R103 C41-C42
L.P.F.
IC45
X1
L17
CT1 (SC LOCK)
NT SYN
NT-Y
NTCH
R-Y IN
Q56 AMP.
Q57,Q66,Q6
AMP.
Q81-Q84 AMP.
VR16 (PR GA
IC56(3/4)
SC2
IC56(4/4)
IC56(2/4)
V+4R7
TP9 (SC)
IC56(1/4)
SC1
CLAMP
IC5
B-Y IN
Q61 AMP.
BF OUT
DL BFIN
VR13 (E
Q77-Q80 AMP.
VR15 (PB GAIN)

AM OF SYNC/ENCODER BOARD

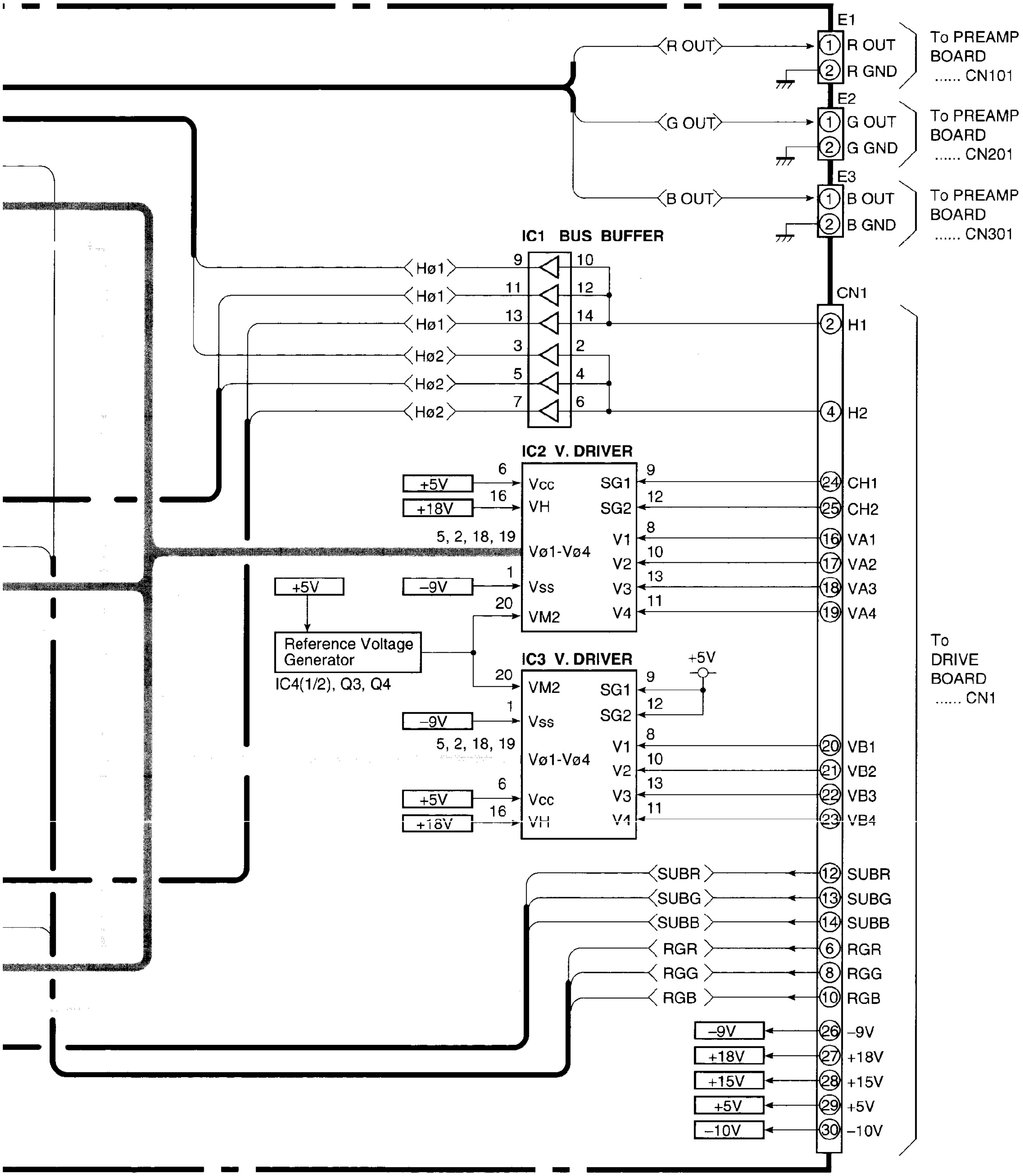

D4
X3
TP10 (INTERLEAVING)
L.P.F.
R333, R126
C97, C98
CT2 (INTERLEAVING)
IC53 PLL
PCBIN
PC2OUT
PCAIN
IC52 INTERLEAVE LOCK
IN7
IN4
IN5
OUT8
OUT5
OUT1
IN3
IN1
IC54 D-FF
D
CK
Q
IC55
LM
NT)
TP6 (SC LOCK)
R103
1-C42
L.P.F.
IC45
D11
IC30(4/4)
MII SYNC
Q40, Q41
BUFFER
VR4 (SYNC GAIN (MII))
Q89
MII Y
BUFFER
Q85-Q88
AMP./MIX
MII YOUT
MII CHR
VR17 (Y GAIN (MII))
IC20(2/2), Q12
V+4R95D
V+4R5D REGULATOR
V+4R5D
IC22(2/2), Q13
V+7
V+6R7D REGULATOR
V+6R7
IC22(2/2), Q1
V+3A REGULATOR
V+3A
IC30(1/4)
VF SYNC
RET CNT
Q46
Q42
VF Y IN
BUFFER
SAFETY
VF CHR
Q43, Q44
AMP.
IC42
AMP.
VF Y
Q45
RET Y IN
BUFFER
IC30(3/4)
NT SYNC
Q38, Q39
BUFFER
Q49
BUFFER
S-YOUT
IC33
VR18 (SYNC GAIN)
IC32 SELECTOR
Q53-Q55
NT-Y
AMP./MIX
NTCHR
DL1
DL1
Q50-Q52
AMP./MIX
Q48
BUFFER
Q91
BUFFER
IC34
OUTPUT
F VID
VIDEO
VR7 (Y GAIN (S))
VR5 (COMPOSITE VIDEO GAIN)
ENC/VF
Q47
VR10 (CHROMA GAIN (S))
Q56
AMP.
Q57,Q66,Q67
AMP.
Q58-Q59
AMP.
+2.7V
VR19 (R-Y GAIN)
IC37
MODULATOR
Q60
CLAMP
CLAMP
SC2
Q69
BUFFER
IC35(1/3) SELECTOR
DLBFP
Q70
BUFFER
CF101
L.P.F
Q71-Q74
AMP.
S-COUT
Q81-Q84
AMP.
R-Y OUT
VR16 (PR GAIN)
IC56(3/4)
SC2
IC56(4/4)
V+4R7
IC38(1/3) SELECTOR
IC56(2/4)
VR9 (R-Y CARRIER BAL)
VR11 (B-Y WHITE BAL)
VR12 (R-Y WHITE BAL)
IC38(3/3) SELECTOR
VR8 (B-Y CARRIER BAL)
IC56(1/4)
SC1
VR14 (BURST PHASE)
SC1
CLAMP
B-Y IN
Q61
AMP.
Q62
AMP.
Q63-Q64
AMP.
+2.7V
IC36
MODULATOR
Q68
CLAMP
CLAMP
Q75, Q76
DL BFIN
AMP.
VR13 (BURST GAIN)
Q77-Q80
AMP.
B-Y OUT
VR15 (PB GAIN)
IC26
IC27
VFCHR
Q100
VTR CHR
AMP.
IC8
Q101
BUFFER
Q15
BUFFER
NTCHR
Q22
VTRCNT
CAM CHR
Q16
BAR CAM
MII CHR
IC24
IC25

BLOCK DIAGRAM OF SEN

SENSOR BOARD

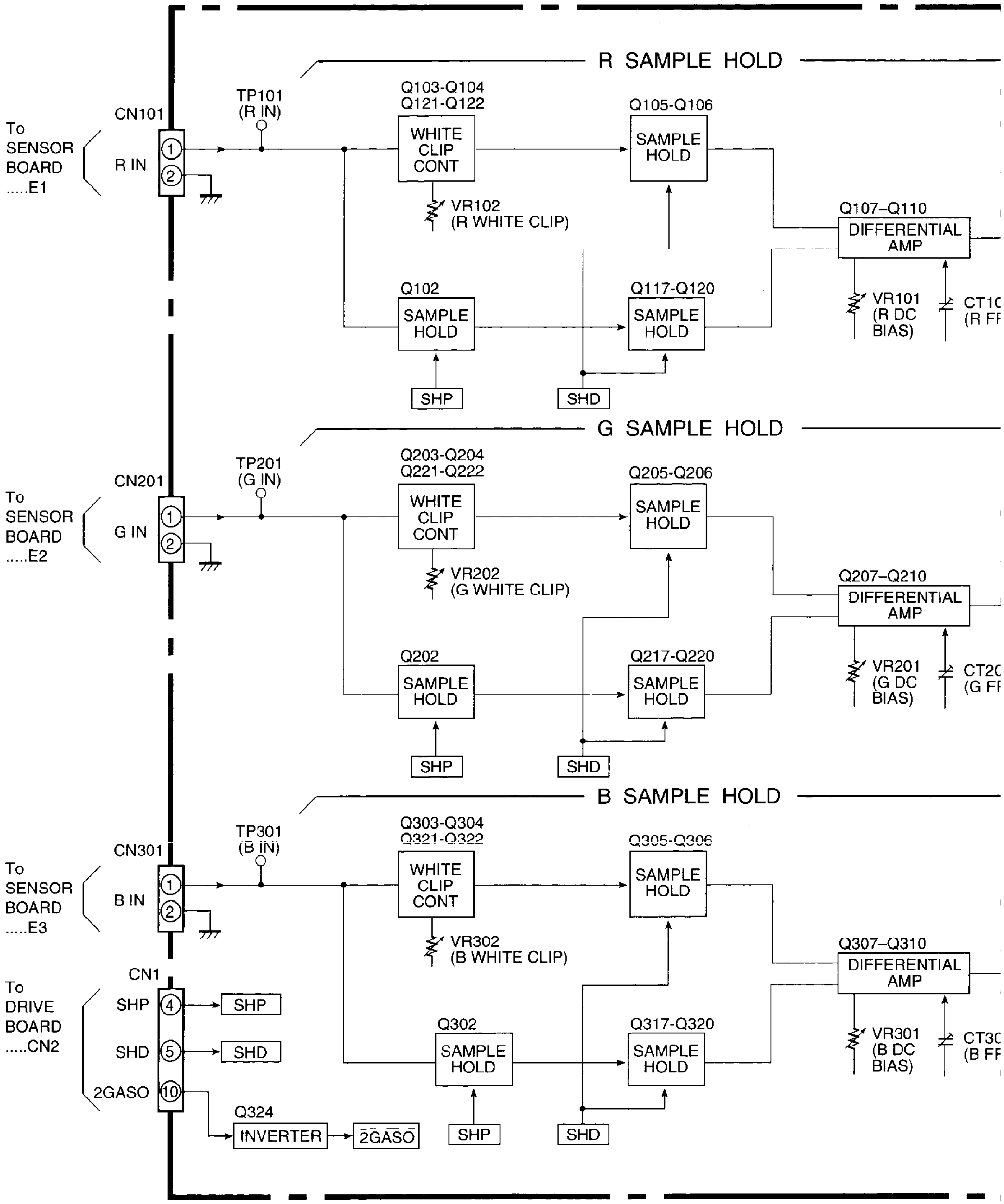

R CHANNEL
IC101
CCD
IMAGE
SENSOR
(R CHANNEL)
VO
Hø1
Hø2
RG
Vø1 – Vø4
Vø1 – Vø4
PT
SUB
4
8
7
2
16-19
11-14
15
1,3,9
10
Q101
BUFFER
–10V
+15V
R OUT
Hø1
Hø2
RGR
SUB R
G CHANNEL
IC201
CCD
IMAGE
SENSOR
(G CHANNEL)
VO
Hø1
Hø2
RG
Vø1 – Vø4
Vø1 – Vø4
PT
SUB
4
8
7
2
16-19
11-14
15
1,3,9
10
Q201
BUFFER
–10V
+15V
G OUT
Hø1
Hø2
RGG
SUB G
B CHANNEL
IC301
CCD
IMAGE
SENSOR
(B CHANNEL)
VO
Hø1
Hø2
RG
Vø1 – Vø4
Vø1 – Vø4
PT
SUB
4
8
7
2
16-19
11-14
15
1,3,9
10
Q301
BUFFER
–10V
+15V
B OUT
Hø1
Hø2
RGB
SUB B

AM OF SENSOR BOARD

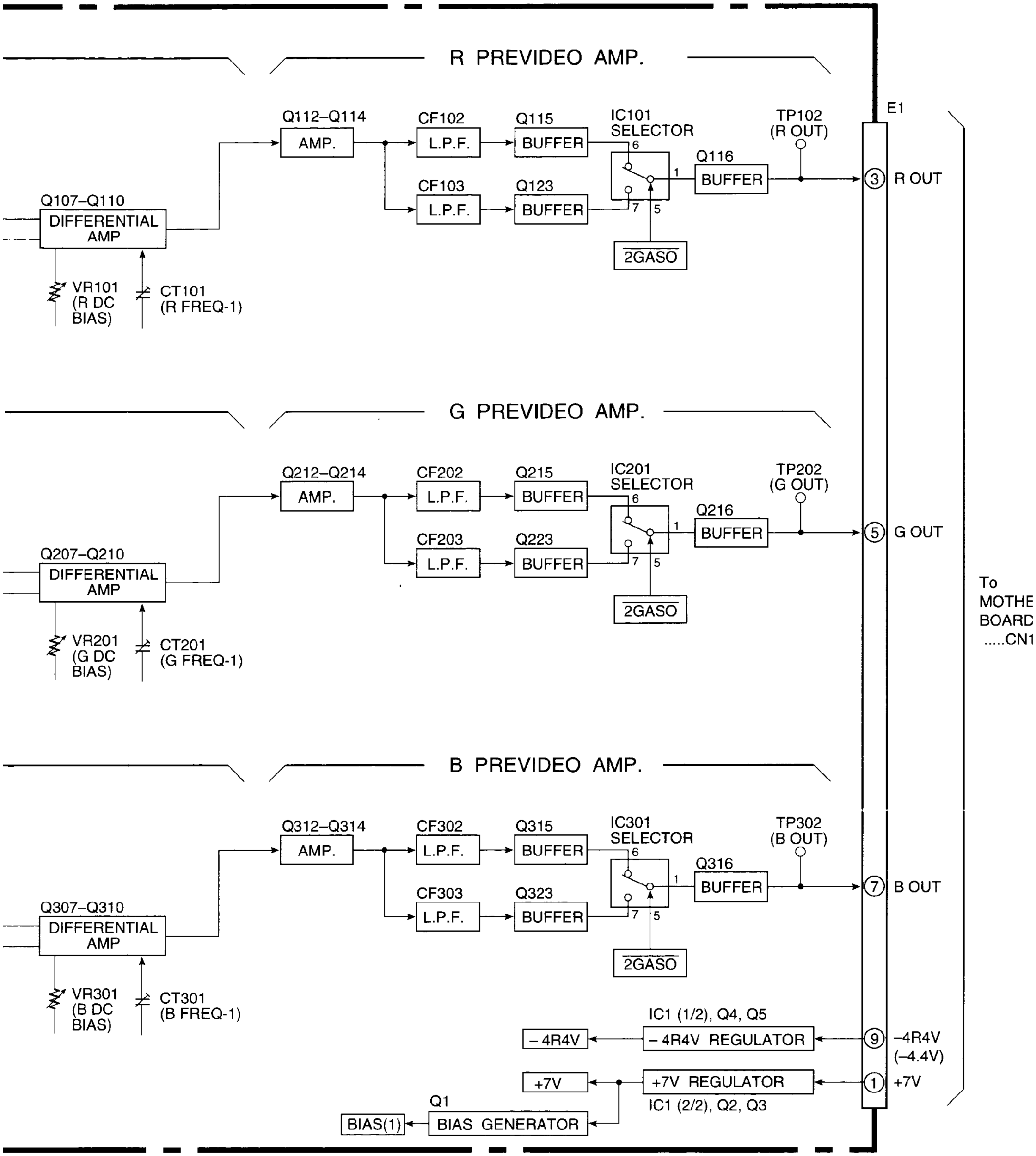

E1
R OUT
R OUT
R GND
To PREAMP BOARD CN101
E2
G OUT
G OUT
G GND
To PREAMP BOARD CN201
E3
B OUT
B OUT
B GND
To PREAMP BOARD CN301
IC1 BUS BUFFER
Hø1
Hø1
Hø1
Hø2
Hø2
Hø2
9
10
11
12
13
14
3
2
5
4
7
6
CN1
H1
H2
IC2 V. DRIVER
+5V
+18V
6
16
5, 2, 18, 19
1
20
Vcc
VH
Vø1-Vø4
Vss
VM2
SG1
SG2
V1
V2
V3
V4
9
12
8
10
13
11
–9V
+5V
Reference Voltage Generator
IC4(1/2), Q3, Q4
CH1
CH2
VA1
VA2
VA3
VA4
IC3 V. DRIVER
+5V
VM2
Vss
Vø1-Vø4
Vcc
VH
SG1
SG2
V1
V2
V3
V4
–9V
+5V
+18V
VB1
VB2
VB3
VB4
To DRIVE BOARD CN1
SUBR
SUBG
SUBB
RGR
RGG
RGB
SUBR
SUBG
SUBB
RGR
RGG
RGB
–9V
+18V
+15V
+5V
–10V
–9V
+18V
+15V
+5V
–10V

BLOCK DIAGRAM OF

PREAMP BOARD

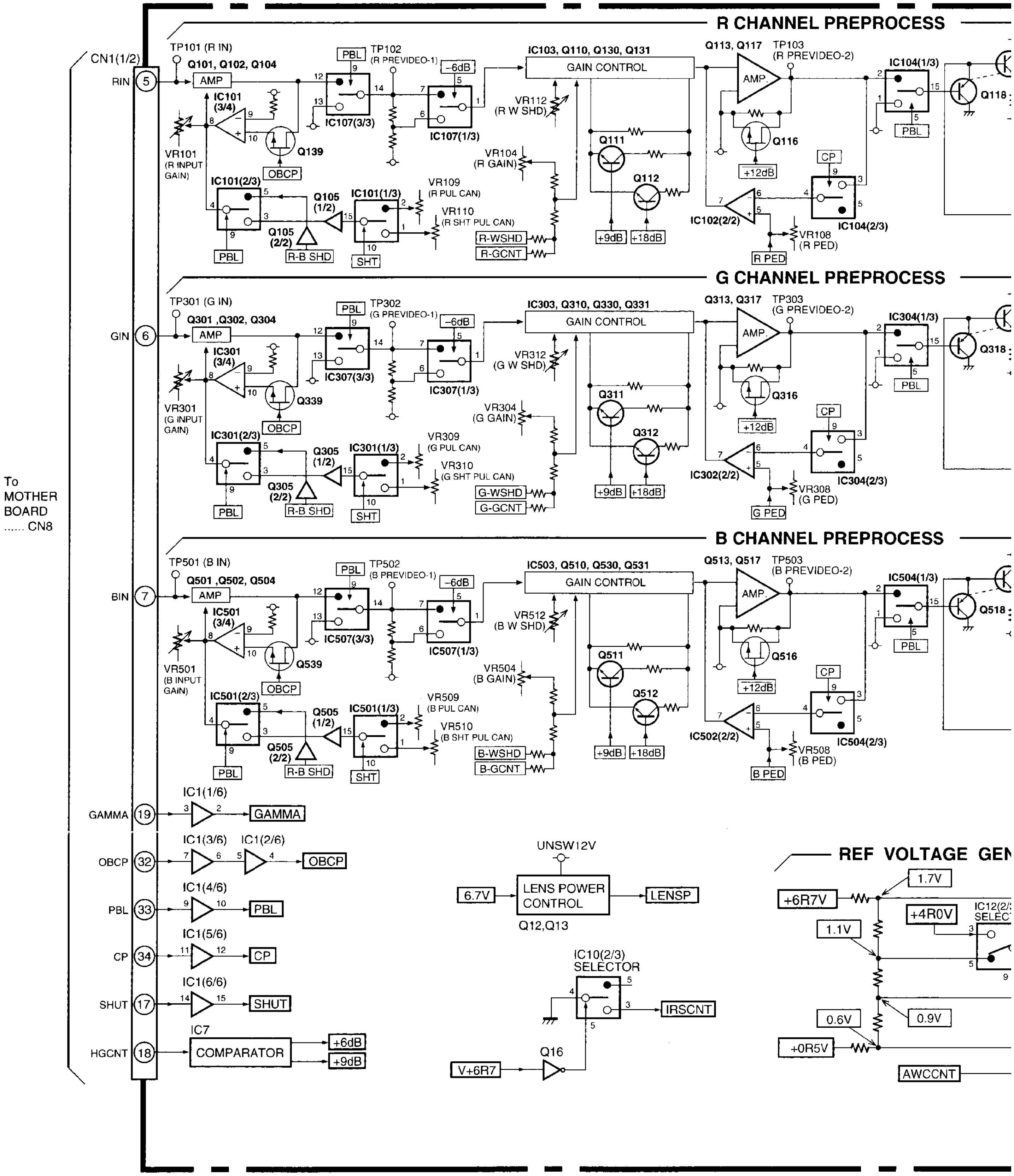

R SAMPLE HOLD
To SENSOR BOARD E1
CN101
R IN
1
2
TP101 (R IN)
Q103-Q104 Q121-Q122
WHITE CLIP CONT
VR102 (R WHITE CLIP)
Q105-Q106
SAMPLE HOLD
Q107–Q110
DIFFERENTIAL AMP
VR101 (R DC BIAS)
CT1
(R F
Q102
SAMPLE HOLD
Q117-Q120
SAMPLE HOLD
SHP
SHD
G SAMPLE HOLD
To SENSOR BOARD E2
CN201
G IN
1
2
TP201 (G IN)
Q203-Q204 Q221-Q222
WHITE CLIP CONT
VR202 (G WHITE CLIP)
Q205-Q206
SAMPLE HOLD
Q207–Q210
DIFFERENTIAL AMP
VR201 (G DC BIAS)
CT2
(G F
Q202
SAMPLE HOLD
Q217-Q220
SAMPLE HOLD
SHP
SHD
B SAMPLE HOLD
To SENSOR BOARD E3
CN301
B IN
1
2
TP301 (B IN)
Q303-Q304 Q321-Q322
WHITE CLIP CONT
VR302 (B WHITE CLIP)
Q305-Q306
SAMPLE HOLD
Q307–Q310
DIFFERENTIAL AMP
VR301 (B DC BIAS)
CT3
(B F
Q302
SAMPLE HOLD
Q317-Q320
SAMPLE HOLD
SHP
SHD
To DRIVE BOARD CN2
CN1
SHP
4
SHP
SHD
5
SHD
2GASO
10
Q324
INVERTER
$\overline{\text{2GASO}}$

AGRAM OF PREAMP BOARD

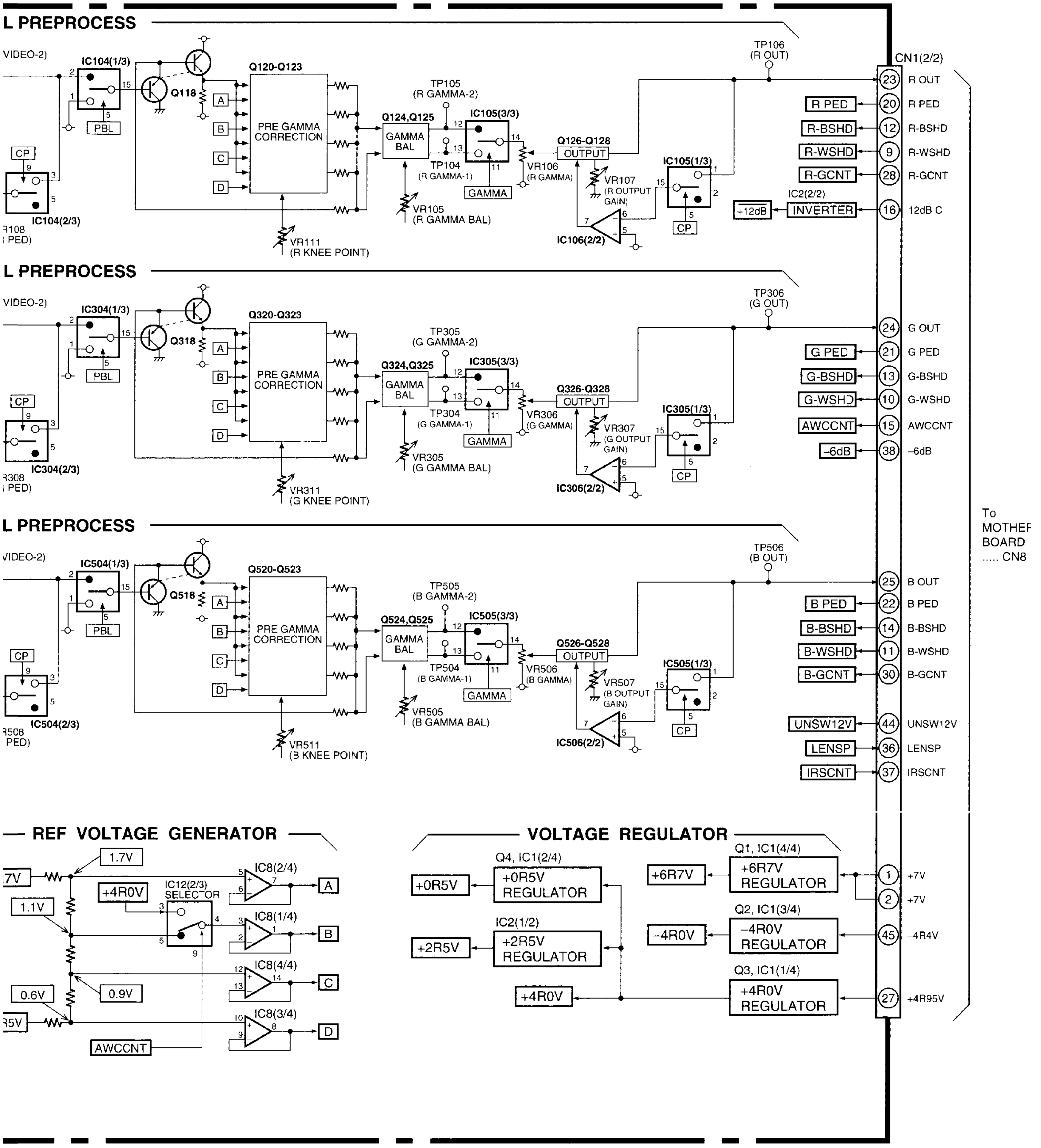

R PREVIDEO AMP.
Q112–Q114
AMP.
CF102
L.P.F.
Q115
BUFFER
IC101
SELECTOR
TP102
(R OUT)
E1
6
1
Q116
BUFFER
③ R OUT
CF103
L.P.F.
Q123
BUFFER
7
5
2GASO
Q107–Q110
DIFFERENTIAL AMP
VR101
(R DC BIAS)
CT101
(R FREQ-1)
G PREVIDEO AMP.
Q212–Q214
AMP.
CF202
L.P.F.
Q215
BUFFER
IC201
SELECTOR
TP202
(G OUT)
Q216
BUFFER
⑤ G OUT
CF203
L.P.F.
Q223
BUFFER
2GASO
Q207–Q210
DIFFERENTIAL AMP
VR201
(G DC BIAS)
CT201
(G FREQ-1)
To MOTHE BOARD CN1
B PREVIDEO AMP.
Q312–Q314
AMP.
CF302
L.P.F.
Q315
BUFFER
IC301
SELECTOR
TP302
(B OUT)
Q316
BUFFER
⑦ B OUT
CF303
L.P.F.
Q323
BUFFER
2GASO
Q307–Q310
DIFFERENTIAL AMP
VR301
(B DC BIAS)
CT301
(B FREQ-1)
IC1 (1/2), Q4, Q5
– 4R4V
– 4R4V REGULATOR
⑨ –4R4V (–4.4V)
+7V
+7V REGULATOR
① +7V
IC1 (2/2), Q2, Q3
Q1
BIAS(1)
BIAS GENERATOR

BLOCK DIAGRAM OF PRE

PREPROCESS BOARD


R CHANNEL PREPROCESS
G CHANNEL PREPROCESS
B CHANNEL PREPROCESS
REF VOLTAGE GEN
CN1(1/2)
RIN 5
GIN 6
BIN 7
GAMMA 19
OBCP 32
PBL 33
CP 34
SHUT 17
HGCNT 18
To MOTHER BOARD CN8
TP101 (R IN)
Q101, Q102, Q104
AMP
IC101 (3/4)
VR101 (R INPUT GAIN)
Q139
OBCP
PBL
TP102 (R PREVIDEO-1)
-6dB
IC107(3/3)
IC107(1/3)
IC101(2/3)
Q105 (1/2)
Q105 (2/2)
R-B SHD
IC101(1/3)
SHT
VR109 (R PUL CAN)
VR110 (R SHT PUL CAN)
R-WSHD
R-GCNT
IC103, Q110, Q130, Q131
GAIN CONTROL
VR112 (R W SHD)
VR104 (R GAIN)
Q111
Q112
+9dB
+18dB
Q113, Q117
TP103 (R PREVIDEO-2)
AMP.
Q116
+12dB
IC102(2/2)
VR108 (R PED)
R PED
CP
IC104(1/3)
IC104(2/3)
Q118
TP301 (G IN)
Q301 ,Q302, Q304
IC301 (3/4)
VR301 (G INPUT GAIN)
Q339
TP302 (G PREVIDEO-1)
IC307(3/3)
IC307(1/3)
IC301(2/3)
Q305 (1/2)
Q305 (2/2)
IC301(1/3)
VR309 (G PUL CAN)
VR310 (G SHT PUL CAN)
G-WSHD
G-GCNT
IC303, Q310, Q330, Q331
VR312 (G W SHD)
VR304 (G GAIN)
Q311
Q312
Q313, Q317
TP303 (G PREVIDEO-2)
Q316
IC302(2/2)
VR308 (G PED)
G PED
IC304(1/3)
IC304(2/3)
Q318
TP501 (B IN)
Q501 ,Q502, Q504
IC501 (3/4)
VR501 (B INPUT GAIN)
Q539
TP502 (B PREVIDEO-1)
IC507(3/3)
IC507(1/3)
IC501(2/3)
Q505 (1/2)
Q505 (2/2)
IC501(1/3)
VR509 (B PUL CAN)
VR510 (B SHT PUL CAN)
B-WSHD
B-GCNT
IC503, Q510, Q530, Q531
VR512 (B W SHD)
VR504 (B GAIN)
Q511
Q512
Q513, Q517
TP503 (B PREVIDEO-2)
Q516
IC502(2/2)
VR508 (B PED)
B PED
IC504(1/3)
IC504(2/3)
Q518
IC1(1/6)
GAMMA
IC1(3/6)
IC1(2/6)
OBCP
IC1(4/6)
PBL
IC1(5/6)
CP
IC1(6/6)
SHUT
IC7
COMPARATOR
+6dB
+9dB
UNSW12V
6.7V
LENS POWER CONTROL
LENSP
Q12,Q13
IC10(2/3) SELECTOR
IRSCNT
Q16
V+6R7
+6R7V
1.7V
+4R0V
IC12(2/ SELEC
1.1V
0.6V
0.9V
+0R5V
AWCCNT

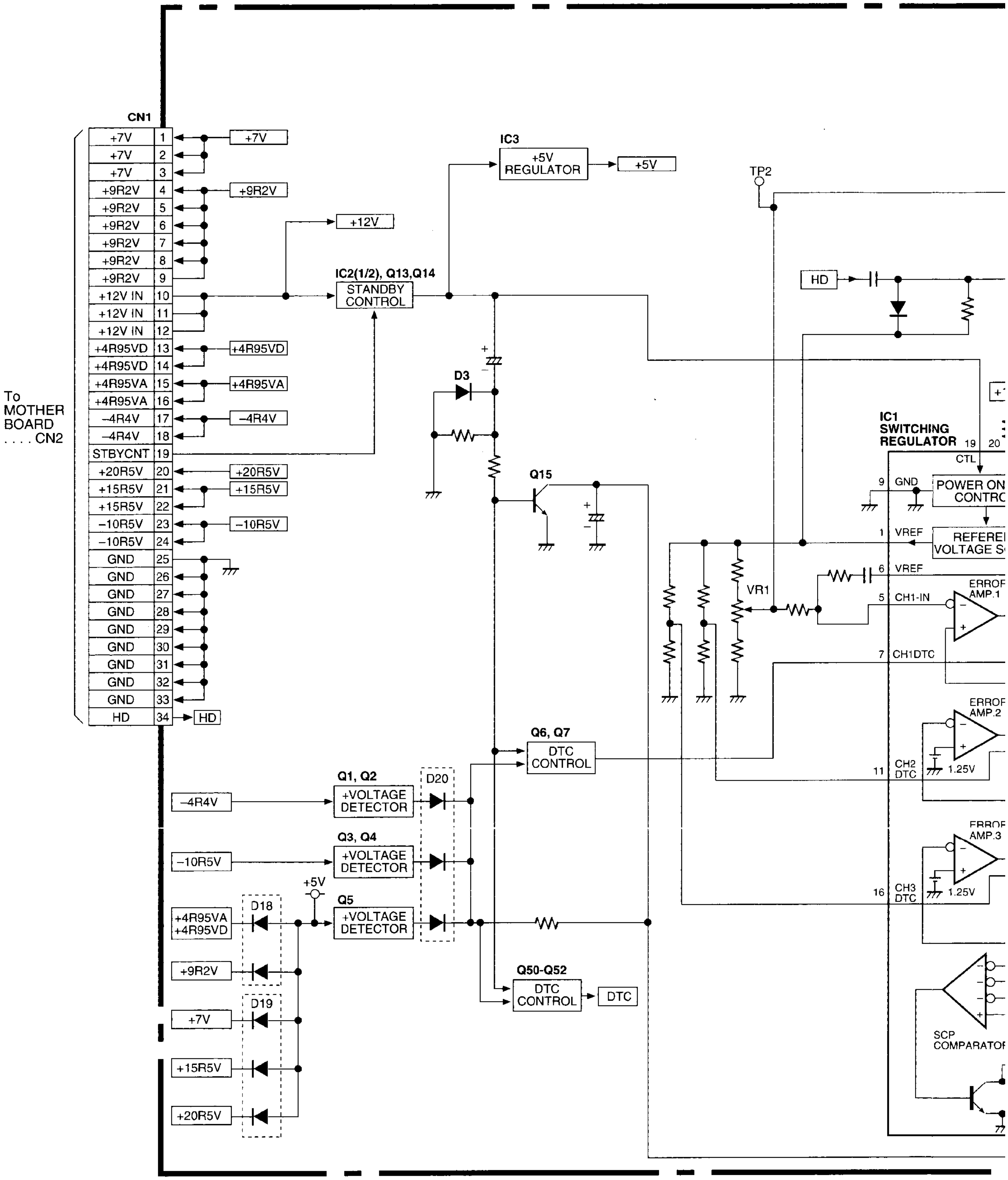
AM OF PREPROCESS BOARD



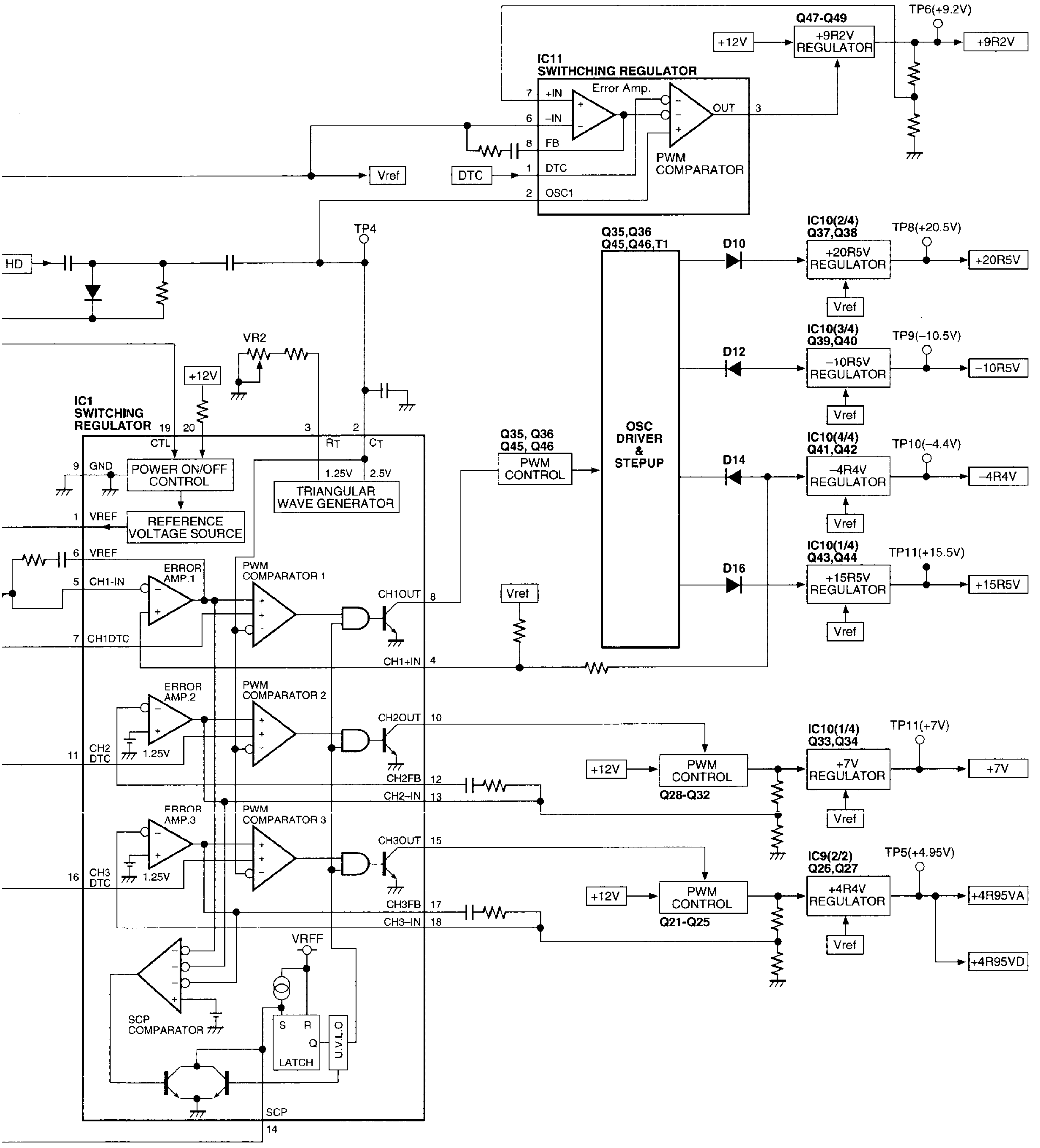
L PREPROCESS
VIDEO-2)
IC104(1/3)
Q118
Q120-Q123
PRE GAMMA CORRECTION
A
B
C
D
PBL
CP
IC104(2/3)
R108
PED)
VR111
(R KNEE POINT)
TP105
(R GAMMA-2)
Q124,Q125
GAMMA BAL
TP104
(R GAMMA-1)
VR105
(R GAMMA BAL)
IC105(3/3)
GAMMA
VR106
(R GAMMA)
Q126-Q128
OUTPUT
VR107
(R OUTPUT GAIN)
IC106(2/2)
IC105(1/3)
TP106
(R OUT)
IC2(2/2)
+12dB
INVERTER
CN1(2/2)
R PED
R-BSHD
R-WSHD
R-GCNT
23 R OUT
20 R PED
12 R-BSHD
9 R-WSHD
28 R-GCNT
16 12dB C
L PREPROCESS
VIDEO-2)
IC304(1/3)
Q318
Q320-Q323
PRE GAMMA CORRECTION
IC304(2/3)
R308
PED)
VR311
(G KNEE POINT)
TP305
(G GAMMA-2)
Q324,Q325
GAMMA BAL
TP304
(G GAMMA-1)
VR305
(G GAMMA BAL)
IC305(3/3)
VR306
(G GAMMA)
Q326-Q328
VR307
(G OUTPUT GAIN)
IC306(2/2)
IC305(1/3)
TP306
(G OUT)
G PED
G-BSHD
G-WSHD
AWCCNT
-6dB
24 G OUT
21 G PED
13 G-BSHD
10 G-WSHD
15 AWCCNT
38 -6dB
To MOTHER BOARD CN8
L PREPROCESS
VIDEO-2)
IC504(1/3)
Q518
Q520-Q523
PRE GAMMA CORRECTION
IC504(2/3)
R508
PED)
VR511
(B KNEE POINT)
TP505
(B GAMMA-2)
Q524,Q525
GAMMA BAL
TP504
(B GAMMA-1)
VR505
(B GAMMA BAL)
IC505(3/3)
VR506
(B GAMMA)
Q526-Q528
VR507
(B OUTPUT GAIN)
IC506(2/2)
IC505(1/3)
TP506
(B OUT)
B PED
B-BSHD
B-WSHD
B-GCNT
UNSW12V
LENSP
IRSCNT
25 B OUT
22 B PED
14 B-BSHD
11 B-WSHD
30 B-GCNT
44 UNSW12V
36 LENSP
37 IRSCNT
REF VOLTAGE GENERATOR
7V
1.7V
1.1V
0.6V
0.9V
5V
+4R0V
IC12(2/3) SELECTOR
IC8(2/4)
IC8(1/4)
IC8(4/4)
IC8(3/4)
AWCCNT
A
B
C
D
VOLTAGE REGULATOR
Q4, IC1(2/4)
+0R5V
+0R5V REGULATOR
IC2(1/2)
+2R5V
+2R5V REGULATOR
+4R0V
Q1, IC1(4/4)
+6R7V
+6R7V REGULATOR
Q2, IC1(3/4)
-4R0V
-4R0V REGULATOR
Q3, IC1(1/4)
+4R0V REGULATOR
1 +7V
2 +7V
45 -4R4V
27 +4R95V

BLOCK DIAGRAM OF P

POWER BOARD

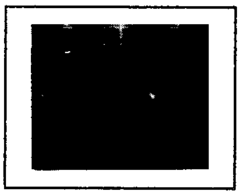

CN1
+7V 1
+7V 2
+7V 3
+9R2V 4
+9R2V 5
+9R2V 6
+9R2V 7
+9R2V 8
+9R2V 9
+12V IN 10
+12V IN 11
+12V IN 12
+4R95VD 13
+4R95VD 14
+4R95VA 15
+4R95VA 16
–4R4V 17
–4R4V 18
STBYCNT 19
+20R5V 20
+15R5V 21
+15R5V 22
–10R5V 23
–10R5V 24
GND 25
GND 26
GND 27
GND 28
GND 29
GND 30
GND 31
GND 32
GND 33
HD 34
To MOTHER BOARD CN2
+7V
+9R2V
+12V
+4R95VD
+4R95VA
–4R4V
+20R5V
+15R5V
–10R5V
HD
IC3
+5V REGULATOR
+5V
IC2(1/2), Q13,Q14
STANDBY CONTROL
D3
Q15
TP2
HD
VR1
IC1 SWITCHING REGULATOR
19 20
CTL
9 GND
POWER ON CONTRO
1 VREF
REFERE VOLTAGE S
6 VREF
5 CH1-IN
ERROR AMP.1
7 CH1DTC
ERROR AMP.2
11 CH2 DTC
1.25V
ERROR AMP.3
16 CH3 DTC
1.25V
SCP COMPARATOR
Q6, Q7
DTC CONTROL
Q1, Q2
+VOLTAGE DETECTOR
–4R4V
D20
Q3, Q4
+VOLTAGE DETECTOR
–10R5V
+5V
D18
Q5
+VOLTAGE DETECTOR
+4R95VA
+4R95VD
+9R2V
D19
+7V
+15R5V
+20R5V
Q50-Q52
DTC CONTROL
DTC

GRAM OF POWER BOARD

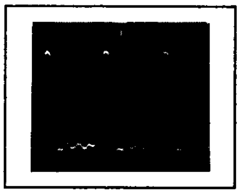

TP6(+9.2V)
Q47-Q49
+12V
+9R2V REGULATOR
+9R2V
IC11
SWITHCHING REGULATOR
Error Amp.
7 +IN
6 –IN
8 FB
1 DTC
2 OSC1
OUT 3
PWM COMPARATOR
Vref
DTC
TP4
HD
Q35,Q36 Q45,Q46,T1
OSC DRIVER & STEPUP
D10
D12
D14
D16
IC10(2/4) Q37,Q38
TP8(+20.5V)
+20R5V REGULATOR
+20R5V
IC10(3/4) Q39,Q40
TP9(–10.5V)
–10R5V REGULATOR
–10R5V
IC10(4/4) Q41,Q42
TP10(–4.4V)
–4R4V REGULATOR
–4R4V
IC10(1/4) Q43,Q44
TP11(+15.5V)
+15R5V REGULATOR
+15R5V
Vref
VR2
+12V
IC1 SWITCHING REGULATOR
19 CTL
20
3 RT
2 CT
9 GND
POWER ON/OFF CONTROL
1.25V
2.5V
TRIANGULAR WAVE GENERATOR
1 VREF
REFERENCE VOLTAGE SOURCE
6 VREF
5 CH1-IN
ERROR AMP.1
PWM COMPARATOR 1
CH1OUT 8
7 CH1DTC
CH1+IN 4
Q35, Q36 Q45, Q46
PWM CONTROL
ERROR AMP.2
PWM COMPARATOR 2
CH2OUT 10
11 CH2 DTC
1.25V
CH2FB 12
CH2–IN 13
ERROR AMP.3
PWM COMPARATOR 3
CH3OUT 15
16 CH3 DTC
1.25V
CH3FB 17
CH3–IN 18
+12V
PWM CONTROL
Q28-Q32
IC10(1/4) Q33,Q34
TP11(+7V)
+7V REGULATOR
+7V
+12V
PWM CONTROL
Q21-Q25
IC9(2/2) Q26,Q27
TP5(+4.95V)
+4R4V REGULATOR
+4R95VA
+4R95VD
VRFF
SCP COMPARATOR
S R Q
LATCH
U.V.L.O
SCP
14

Preamp board

1. 10 µsec/DIV 0.1V/DIV

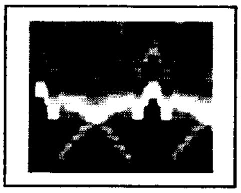


2. 20 nsec/DIV 1V/DIV

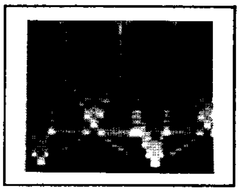


3. 20 nsec/DIV 1V/DIV

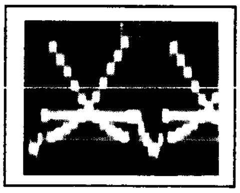
4. 10 µsec/DIV 50mV/DIV



5. 10 µsec/DIV 0.2V/DIV



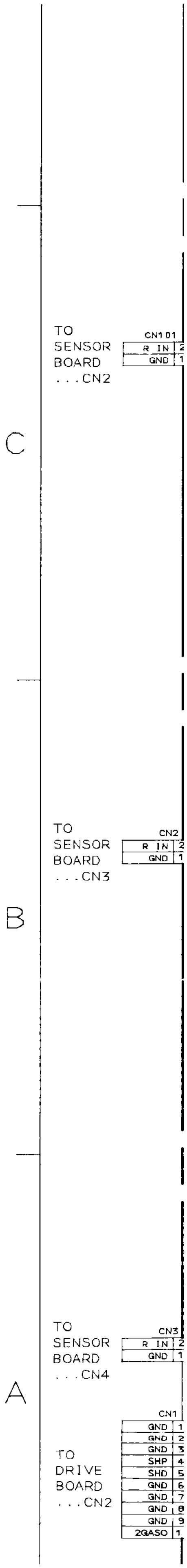
6. 10 µsec/DIV 0.1V/DIV



<Index>

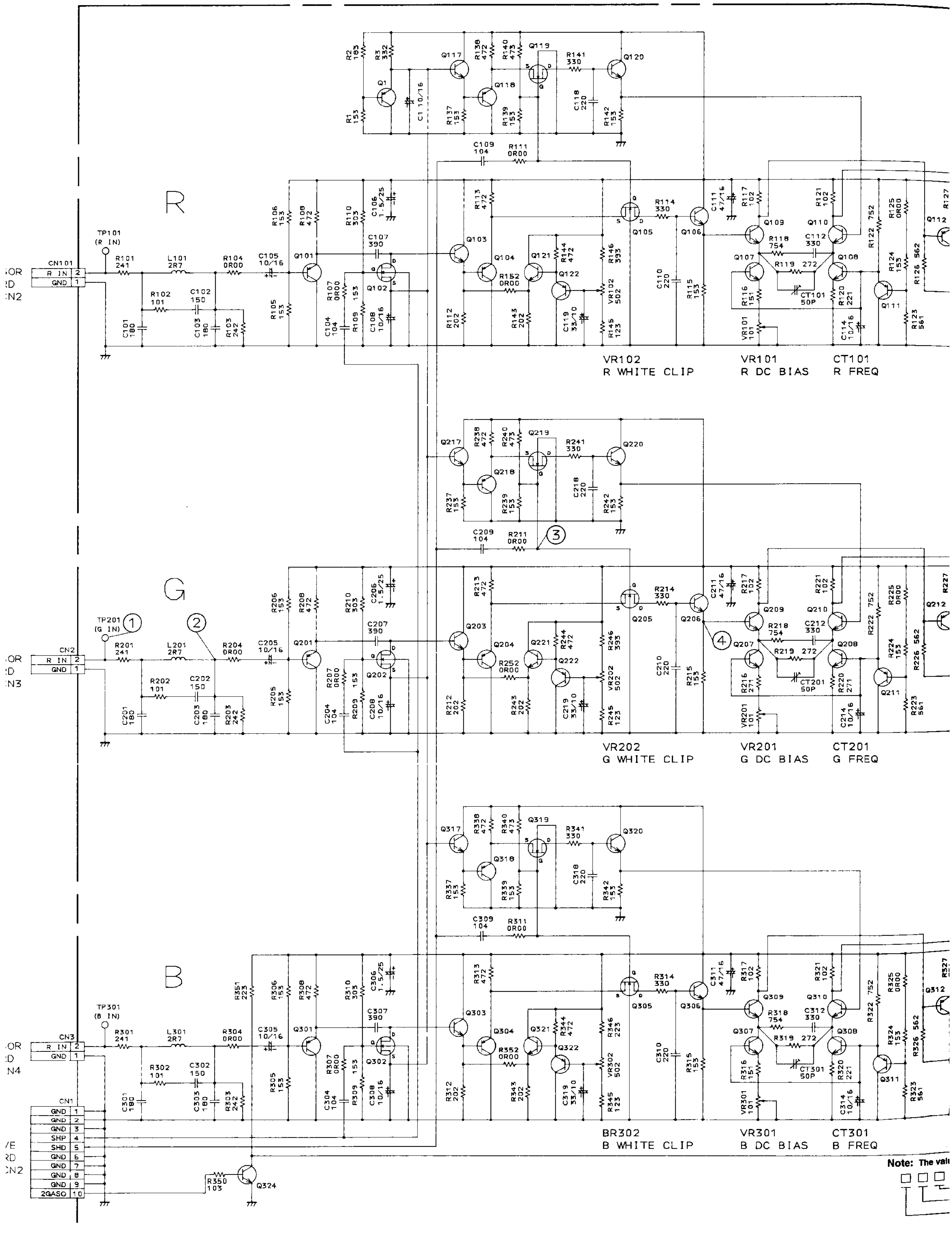
PREAMP BOARD

IC1	C4, D4
IC101	C4
IC201	B4
IC301	A4
Q1	D2
Q2	D4
Q3	D4
Q4	C4
Q5	C4
Q101	C1
Q102	C2
Q103	C2
Q104	C2
Q105	C2
Q106	C2
Q107	C3
Q108	C3
Q109	C3
Q110	C3
Q111	C3
Q112	C3
Q113	C3
Q114	C3
Q115	C4
Q116	C5
Q117	D2
Q118	D2
Q119	D2
Q120	D2
Q121	C2
Q122	C2
Q123	C4
Q201	B1
Q202	B2
Q203	B2
Q204	B2
Q205	B2
Q206	B2
Q207	B3
Q208	B3
Q209	B3
Q210	B3
Q211	B3
Q212	B3
Q213	B3
Q214	B3
Q215	B4
Q216	B5
Q217	C2
Q218	C2
Q219	C2
Q220	C2
Q221	B2
Q222	B2
Q223	B4
Q301	A1
Q302	A2
Q303	A2
Q304	A2
Q305	A2
Q306	A2
Q307	A3
Q308	A3
Q309	A3
Q310	A3
Q311	A3
Q312	A3
Q313	A3
Q314	A3
Q315	A4
Q316	A5
Q317	B2
Q318	B2
Q319	B2
Q320	B2
Q321	A2
Q322	A2
Q323	A4
Q324	A1


C
B
A
TO SENSOR BOARD . . . CN2
CN101
R IN
GND
TO SENSOR BOARD . . . CN3
CN2
R IN
GND
TO SENSOR BOARD . . . CN4
CN3
R IN
GND
TO DRIVE BOARD . . . CN2
CN1
GND
GND
GND
SHP
SHD
GND
GND
GND
GND
2GASO

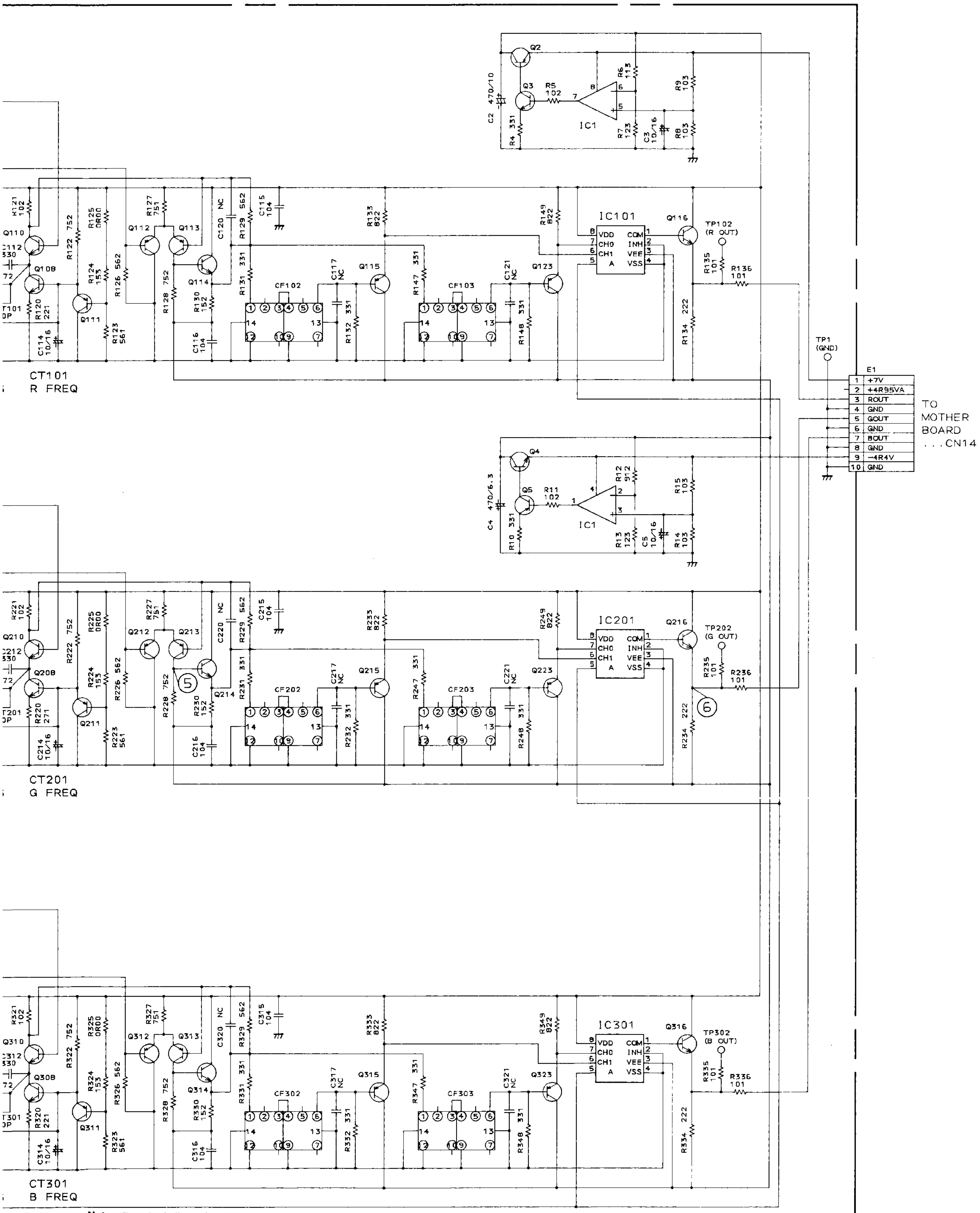
SCHEMATIC DIAGRAM OF PR

PREAMP BOARD


R
G
B
CN101
R IN
GND
CN2
CN3
CN1
GND
SHP
SHD
2GASO
TP101 (R IN)
TP201 (G IN)
TP301 (B IN)
①
②
③
④
R101 241
L101 2R7
R104 0R00
C105 10/16
R102 101
C102 150
C101 180
C103 180
R103 242
R106 153
R108 472
R105 153
R110 303
C106 1.5/25
C107 390
R107 0R00
R109 153
C104 104
C108 10/16
Q101
Q102
Q103
Q104
R113 472
R112 202
R152 0R00
R143 202
Q121
Q122
R144 472
C119 33/10
R146 393
VR102 502
R145 123
Q105
Q106
R114 330
C110 220
R115 153
C111 47/16
R117 102
Q109
Q110
R121 102
R118 754
C112 330
Q107
Q108
R119 272
CT101 50P
R116 151
R120 221
VR101 101
C114 10/16
R122 752
R125 0R00
R124 153
R126 562
R123 561
Q111
Q112
R127
R2 183
R3 332
R1 153
Q1
C1 10/16
Q117
Q118
R138 472
R137 153
R140 473
R139 153
Q119
R141 330
C118 220
Q120
R142 153
C109 104
R111 0R00
VR102
R WHITE CLIP
VR101
R DC BIAS
CT101
R FREQ
Q217
Q218
R238 472
R237 153
R240 473
R239 153
Q219
R241 330
C218 220
Q220
R242 153
C209 104
R211 0R00
R201 241
L201 2R7
R204 0R00
C205 10/16
R202 101
C202 150
C201 180
C203 180
R203 242
R206 153
R208 472
R205 153
R210 303
C206 1.5/25
C207 390
R207 0R00
R209 153
C204 104
C208 10/16
Q201
Q202
Q203
Q204
R213 472
R212 202
R252 0R00
R243 202
Q221
Q222
R244 472
C219 33/10
R246 393
VR202 502
R245 123
Q205
Q206
R214 330
C210 220
R215 153
C211 47/16
R217 102
Q209
Q210
R221 102
R218 754
C212 330
Q207
Q208
R219 272
CT201 50P
R216 271
R220 271
VR201 101
C214 10/16
R222 752
R225 0R00
R224 153
R226 562
R223 561
Q211
Q212
R227
VR202
G WHITE CLIP
VR201
G DC BIAS
CT201
G FREQ
Q317
Q318
R338 472
R337 153
R340 473
R339 153
Q319
R341 330
C318 220
Q320
R342 153
C309 104
R311 0R00
R301 241
L301 2R7
R304 0R00
C305 10/16
R302 101
C302 150
C301 180
C303 180
R303 242
R351 223
R306 153
R308 472
R305 153
R310 303
C306 1.5/25
C307 390
R307 0R00
R309 153
C304 104
C308 10/16
Q301
Q302
Q303
Q304
R313 472
R312 202
R352 0R00
R343 202
Q321
Q322
R344 472
C319 33/10
R346 223
VR302 502
R345 123
Q305
Q306
R314 330
C310 220
R315 153
C311 47/16
R317 102
Q309
Q310
R321 102
R318 754
C312 330
Q307
Q308
R319 272
CT301 50P
R316 151
R320 221
VR301 101
C314 10/16
R322 752
R325 0R00
R324 153
R326 562
R323 561
Q311
Q312
R327
BR302
B WHITE CLIP
VR301
B DC BIAS
CT301
B FREQ
R350 103
Q324

Note: The val

AM OF PREAMP BOARD


Q2
Q3
R5 102
C2 470/10
R4 331
R6 113
R9 103
IC1
R7 123
C3 10/16
R8 103
R121 102
Q110
C112 330
Q108
T101 OP
R120 221
C114 10/16
R122 752
R125 0R00
R124 153
R126 562
R123 561
Q111
R127 751
Q112
Q113
R128 752
C120 NC
Q114
R130 152
C116 104
R129 562
R131 331
C115 104
CF102
C117 NC
R132 331
R133 822
Q115
R147 331
CF103
C121 NC
Q123
R148 331
R149 822
IC101
VDD
CH0
CH1
A
COM
INH
VEE
VSS
Q116
TP102 (R OUT)
R135 101
R136 101
R134 222
CT101
R FREQ
TP1 (GND)
E1
1 +7V
2 +4R95VA
3 ROUT
4 GND
5 GOUT
6 GND
7 BOUT
8 GND
9 −4R4V
10 GND
TO MOTHER BOARD . . . CN14
Q4
Q5
R11 102
C4 470/6.3
R10 331
R12 912
R15 103
R13 123
C5 10/16
R14 103
IC1
R221 102
Q210
C212 330
Q208
T201 OP
R220 271
C214 10/16
R222 752
R225 0R00
R224 153
R226 562
R223 561
Q211
R227 751
Q212
Q213
R228 752
C220 NC
Q214
R230 152
C216 104
R229 562
R231 331
C215 104
CF202
C217 NC
R232 331
R233 822
Q215
R247 331
CF203
C221 NC
Q223
R248 331
R249 822
IC201
Q216
TP202 (G OUT)
R235 101
R236 101
R234 222
⑤
⑥
CT201
G FREQ
R321 102
Q310
C312 330
Q308
T301 OP
R320 221
C314 10/16
R322 752
R325 0R00
R324 153
R326 562
R323 561
Q311
R327 751
Q312
Q313
R328 752
C320 NC
Q314
R330 152
C316 104
R329 562
R331 331
C315 104
CF302
C317 NC
R332 331
R333 822
Q315
R347 331
CF303
C321 NC
Q323
R348 331
R349 822
IC301
Q316
TP302 (B OUT)
R335 101
R336 101
R334 222
CT301
B FREQ

Note: **The value indicated in the schematic diagram should be read as follows:**

☐ ☐ ☐
Multiplier (0 - 5)
2nd. Significant Digit (0 - 9)
1st. Siginificant Digit (1 - 9)

<Example>

For Resistor:

330 → 33 x 10^0 = 33 Ω
561 → 56 x 10^1 = 560 Ω
123 → 12 x 10^3 = 12k Ω
0R00 = 0 Ω

For Capacitor:

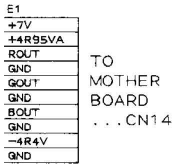
820 → 82 x 10^0 = 82 pF
102 → 10 x 10^2 = 1000 pF = 0.001 µF
104 → 10 x 10^4 = 100000 pF = 0.1 µF
The suffix attached to capacitance indicates a type of capacitor.

PREAMP BOARD

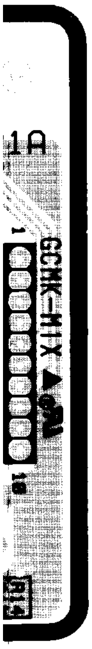
	IC1	IC101	IC201	IC301
Pin 1	-0.6	0.8	0.8	0.8
2	-2.2	0	0	0
3	-2.2	-3.9	-3.9	-3.9
4	-4.4	0	0	0
5	3.5	6.6	6.6	6.6
6	3.5	0.8	0.8	0.8
7	0.6	0.8	0.8	0.8
8	6.9	6.7	6.7	6.7

	B	C	E
Q1	3.8	0	3.1
2	0.1	6.3	0.6
3	6.3	6.7	6.9
4	-0.6	-3.7	0
5	-3.7	-3.8	-4.4
101	4.0	0	3.4
103	3.8	6.7	2.9
104	2.9	0	3.6
106	3.6	6.7	2.8
107	0.9	2.1	0.3
108	0.9	2.3	0.3
109	2.8	4.4	2.1
110	3.0	4.4	2.3
111	0.9	0	0.2
112	5.1	0	4.4
113	5.1	1.0	4.4
114	0.3	6.7	1.0
115	0.8	-3.8	0.1
116	0.1	6.7	0.8
117	3.1	6.7	3.8
118	3.8	0	3.1
120	3.0	6.7	3.7
121	2.5	6.7	2.9
122	1.8	0	2.5
123	0.8	-3.8	0.1
201	4.0	0	3.4
203	3.8	6.7	2.9
204	2.9	0	3.6
206	3.6	6.7	2.8
207	0.9	2.1	0.3
208	0.9	2.3	0.3
209	2.8	4.4	2.1
210	3.0	4.4	2.3
211	0.9	0	0.2
212	5.1	0	4.4
213	5.1	1.0	4.4
214	0.3	6.7	1.0
215	0.8	-3.8	0.1
216	0.1	6.7	0.8
217	3.1	6.7	3.8
218	3.8	0	3.1
220	3.0	6.7	3.7
221	2.5	6.7	2.9
222	1.8	0	2.5
223	0.8	-3.8	0.1

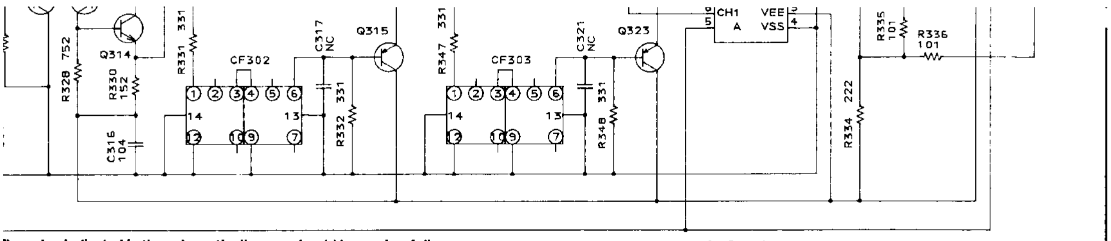
	B	C	E
Q301	4.0	0	3.4
303	3.8	6.7	2.9
304	2.9	0	3.6
306	3.6	6.7	2.8
307	0.9	2.1	0.3
308	0.9	2.3	0.3
309	2.8	4.4	2.1
310	3.0	4.4	2.3
311	0.9	0	0.2
312	5.1	0	4.4
313	5.1	1.0	4.4
314	0.3	6.7	1.0
315	0.8	-3.8	0.1
316	0.1	6.7	0.8
317	3.1	6.7	3.8
318	3.8	0	3.1
320	3.0	6.7	3.7
321	2.5	6.7	2.9
322	1.8	0	2.5
323	0.8	-3.8	0.1



Pin	Q102	Q105	Q119	Q202	Q205	Q219	Q302	Q305	Q319
1	0	0	0	0	0	0	0	0	0
2 (G)	2.2	1.6	1.6	2.2	1.6	1.6	2.2	1.6	1.6
3 (S)	3.8	3.6	3.8	3.8	3.6	3.8	3.8	3.6	3.8
4 (D)	3.8	3.5	3.7	3.8	3.5	3.7	3.8	3.5	3.7


1A
1
GCMK-M1X
18

EW)


R328 752
Q314
R330 152
R331 331
C316 104
CF302
14
13
C317 NC
R332 331
Q315
R347 331
CF303
C321 NC
R348 331
Q323
CH1
A
VEE
VSS
5
4
R334 222
R335 101
R336 101

'he value indicated in the schematic diagram should be read as follows:

Multiplier (0 - 5)
2nd. Significant Digit (0 - 9)
1st. Siginificant Digit (1 - 9)

<Example>

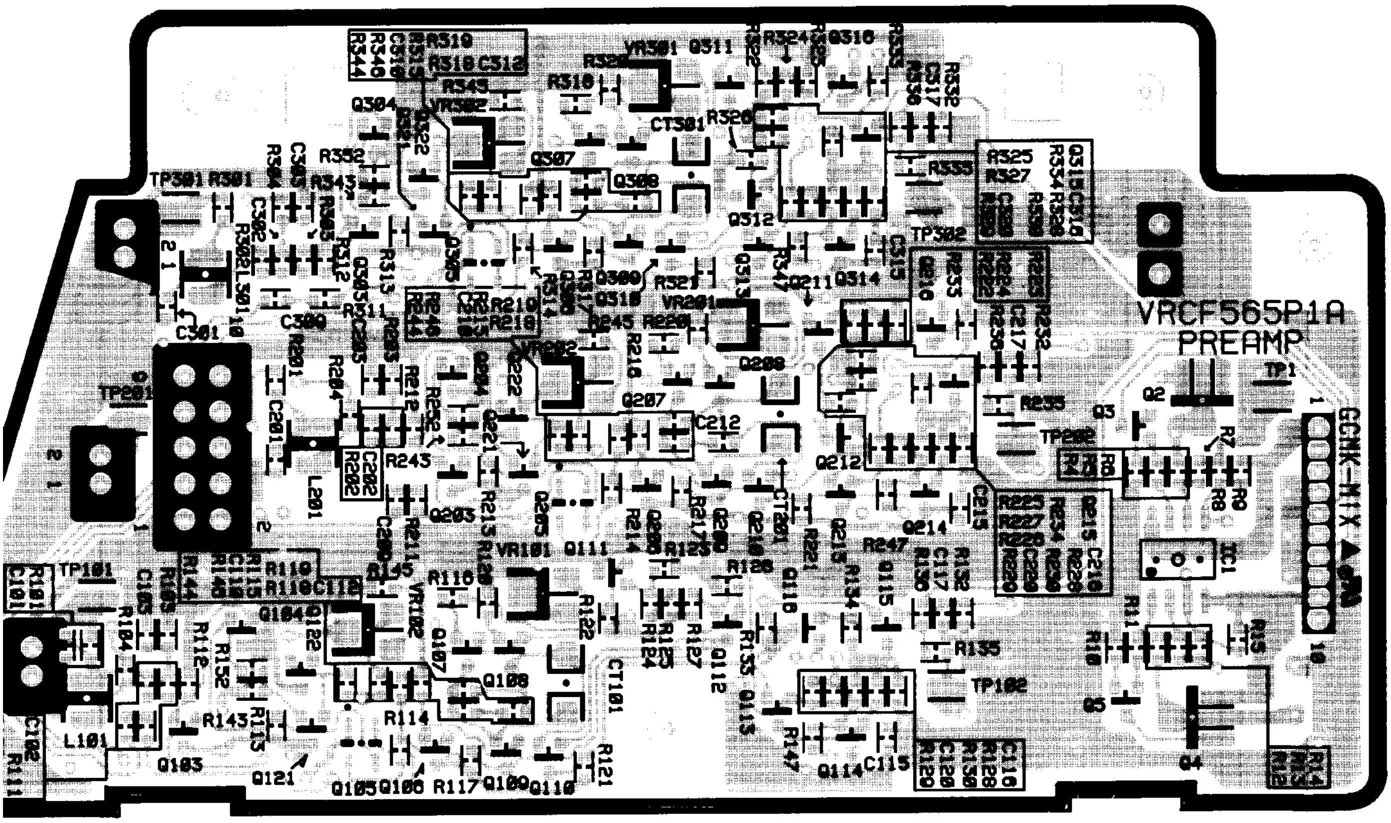
For Resistor:
330 ⟶ 33 x 10^0 = 33 Ω
561 ⟶ 56 x 10^1 = 560 Ω
123 ⟶ 12 x 10^3 = 12k Ω
0R00 = 0 Ω

For Capacitor:
820 ⟶ 82 x 10^0 = 82 pF
102 ⟶ 10 x 10^2 = 1000 pF = 0.001 µF
104 ⟶ 10 x 10^4 = 100000 pF = 0.1 µF
The suffix attached to capacitance indicates a type of capacitor.

4 5

PREAMP BOARD

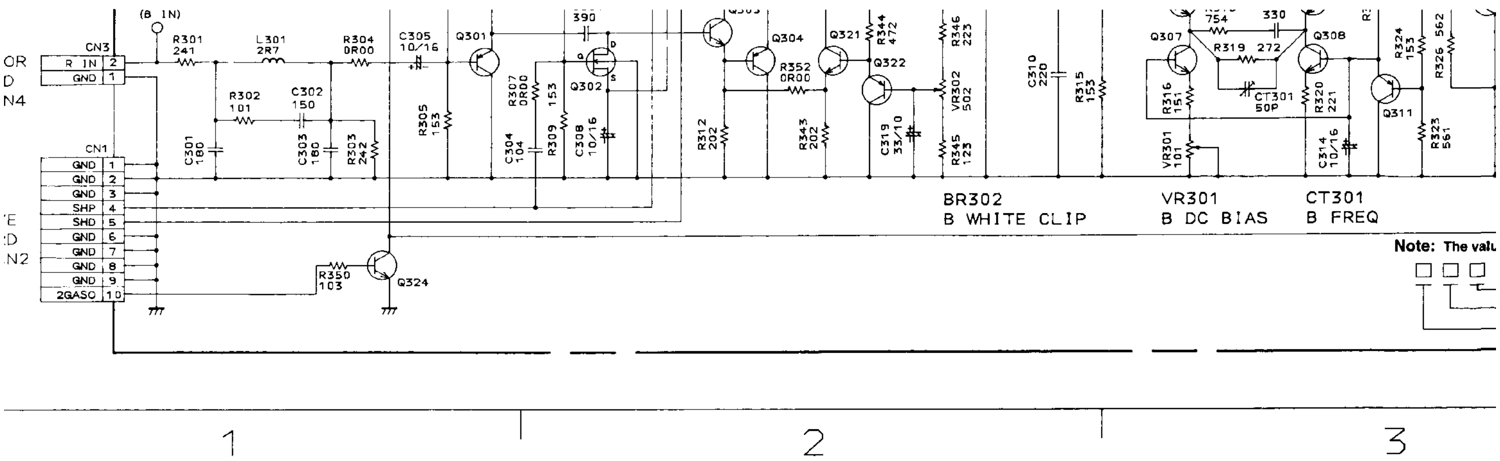
PREAMP BOARD


VRCF565P1A
PREAMP
GCMK-MIX
TP301
TP302
TP201
TP202
TP101
TP102
TP1
VR301
VR302
VR201
VR202
VR101
VR102
CT301
CT201
CT101
Q311
Q316
Q304
Q307
Q308
Q312
Q313
Q314
Q310
Q309
Q305
Q207
Q208
Q211
Q212
Q213
Q214
Q215
Q203
Q204
Q205
Q206
Q209
Q210
Q221
Q222
Q104
Q107
Q108
Q109
Q110
Q111
Q112
Q113
Q114
Q115
Q116
Q103
Q105
Q106
Q121
Q122
Q2
Q3
Q4
Q5
IC1
L301
L201
L101
C301
C300
C201
C212
C115
R301
R302
R352
R343
R320
R321
R324
R335
R325
R327
R334
R243
R247
R235
R220
R216
R201
R204
R212
R213
R214
R221
R110
R114
R117
R121
R122
R123
R124
R125
R127
R128
R135
R143
R147
R152
R104
R112
R113
R10
R11
R7
R8
R9
1
2
10

(PATTERN SIDE VIEW)

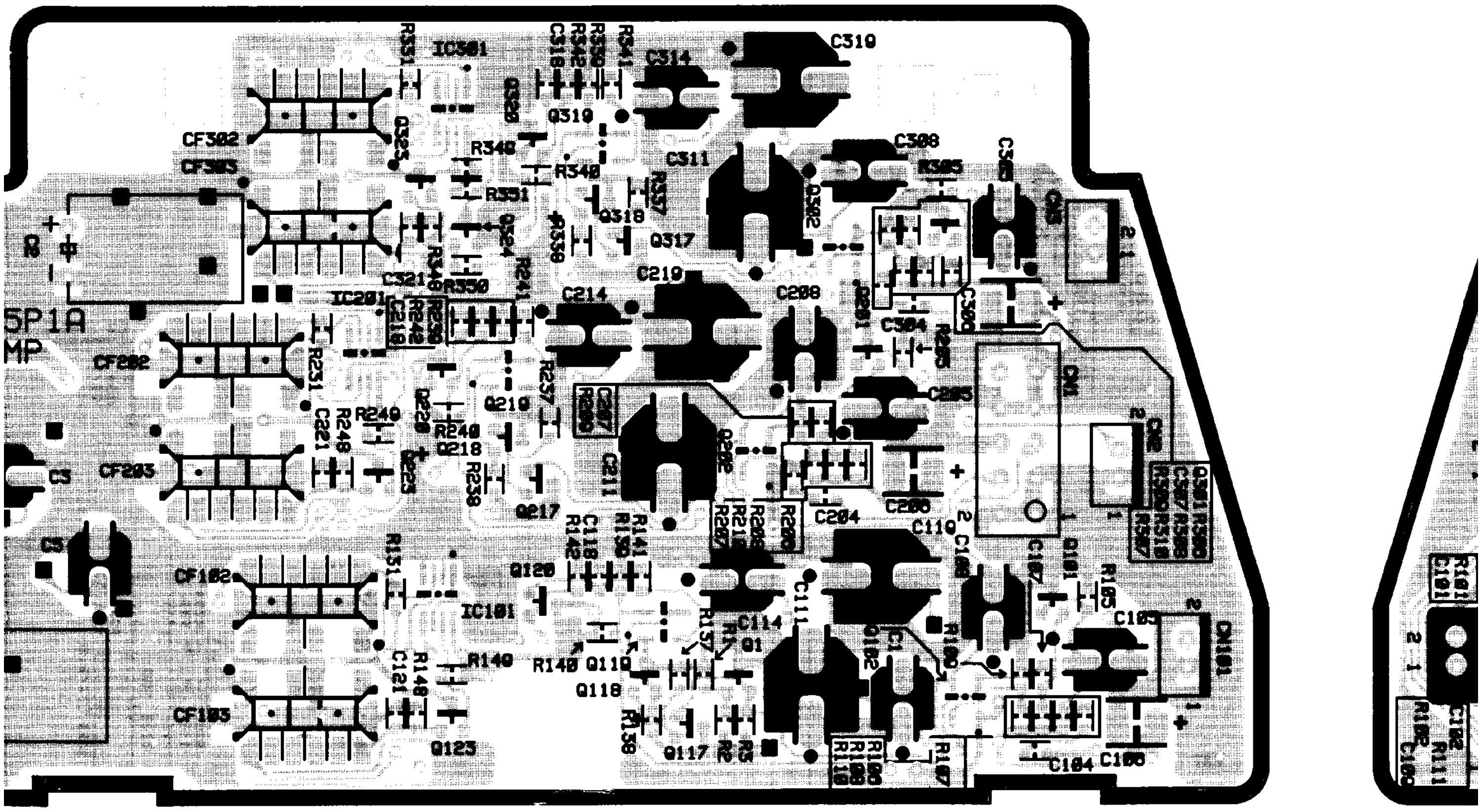
▨ PATTERN SIDE
INTERMEDIATE PATTERN

4 5 6


(B IN)
CN3
R IN
GND
OR
D
N4
CN1
GND
SHP
SHD
2GASO
N2
R301
241
L301
2R7
R304
0R00
C305
10/16
Q301
390
Q302
R302
101
C302
150
C301
180
C303
180
R303
242
R305
153
R307
0R00
R309
153
C304
104
C308
10/16
Q304
R352
0R00
R312
202
R343
202
Q321
Q322
R344
472
R346
223
VR302
502
C319
33/10
R345
123
C310
220
R315
153
R350
103
Q324
Q307
754
330
R319
272
CT301
50P
Q308
R316
151
R320
221
VR301
101
C314
10/16
R324
153
R326
562
Q311
R323
561
BR302
B WHITE CLIP
VR301
B DC BIAS
CT301
B FREQ
Note: The valu
1
2
3

CONDUCTOR VIEW OF P

PREAMP BOARD


CF302
CF303
CF202
CF203
CF102
CF103
IC301
IC201
IC101
C319
C314
C311
C308
C305
C306
C304
C321
C219
C214
C208
C211
C205
C204
C206
C119
C118
C114
C111
C105
C108
C107
C104
C101
C121
C3
C5
Q319
Q318
Q317
Q302
Q325
Q324
Q320
Q219
Q218
Q217
Q220
Q225
Q202
Q120
Q119
Q118
Q117
Q123
Q101
Q1
R331
R340
R351
R339
R337
R350
R341
R305
R231
R249
R240
R237
R238
R241
R131
R148
R149
R140
R141
R142
R139
R137
R138
R105
R107
R2
R3
DM1
DM101
5P1A
MP

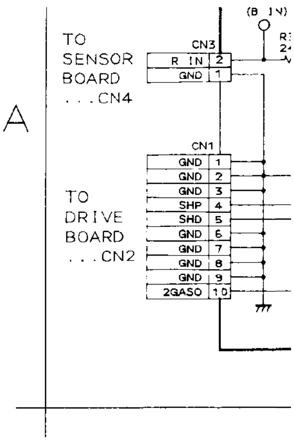
PONENT SIDE

RMEDIATE PATTERN

(COMPONENT SIDE VIEW)

1 2 3

Q308	A3
Q309	A3
Q310	A3
Q311	A3
Q312	A3
Q313	A3

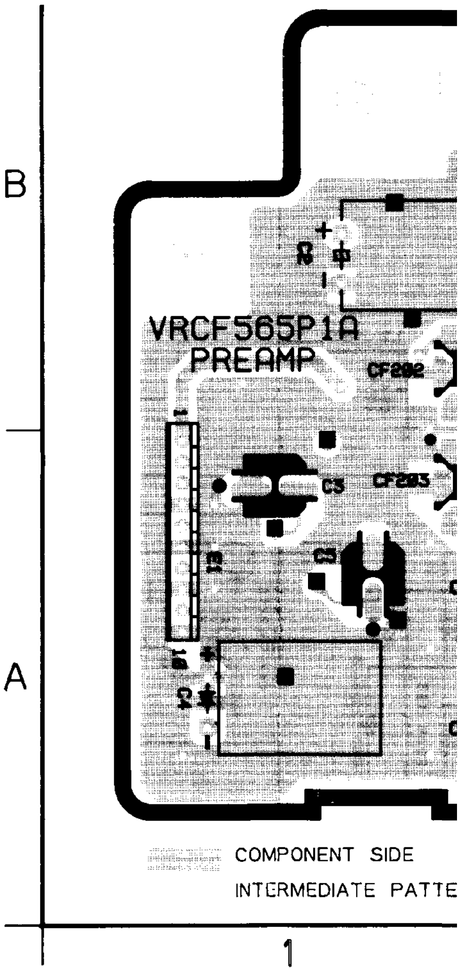

A
TO SENSOR BOARD . . . CN4
CN3
R IN 2
GND 1
TO DRIVE BOARD . . . CN2
CN1
GND 1
GND 2
GND 3
SHP 4
SHD 5
GND 6
GND 7
GND 8
GND 9
2GASO 10
(B IN)

<Index>

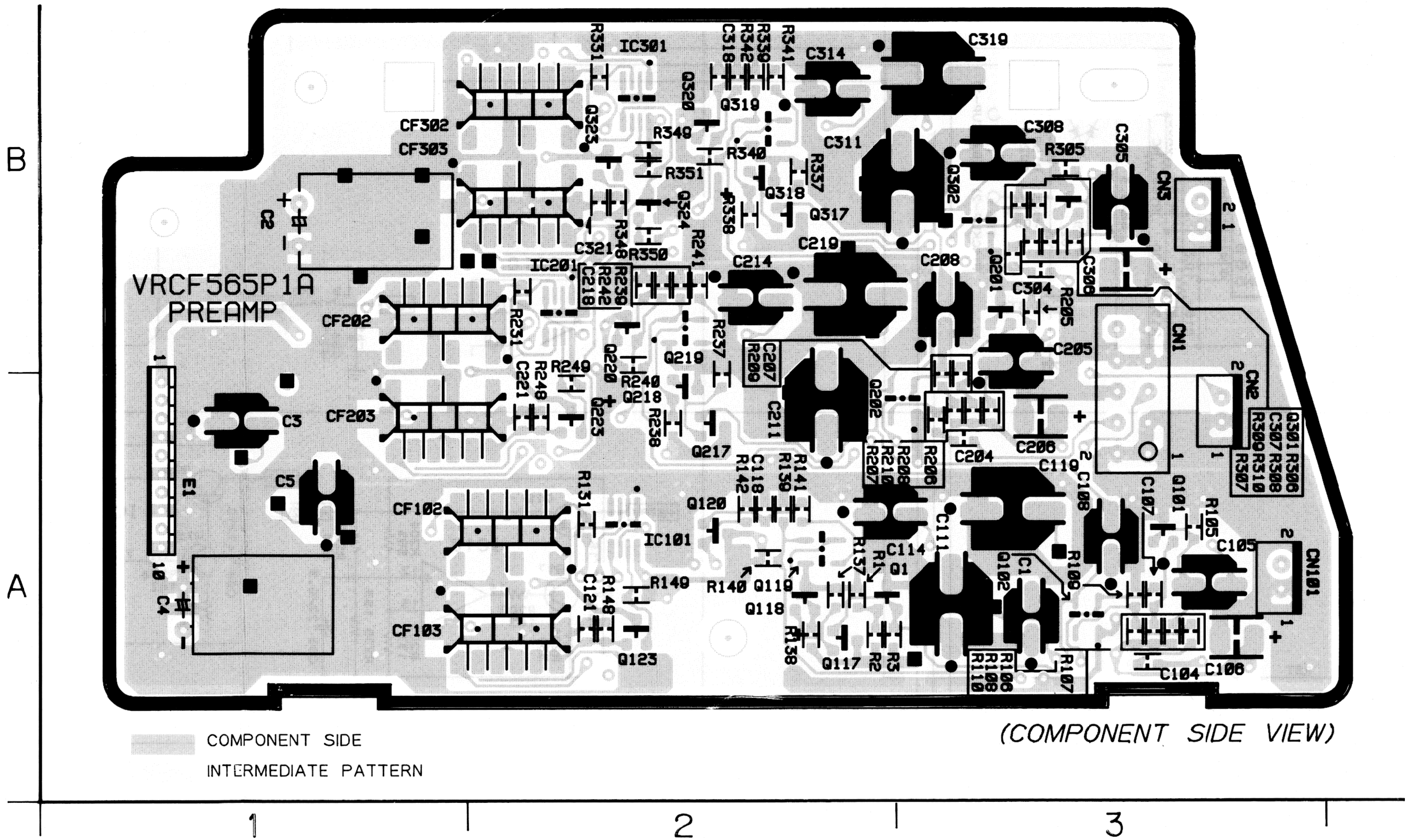
PREAMP BOARD

IC1	A6
IC101	A2
IC201	B2
IC301	B2
Q1	A2
Q2	B6
Q3	B6
Q4	A6
Q5	A6
Q101	A3
Q102	A3
Q103	A4
Q104	A4
Q105	A5
Q106	A5
Q107	A5
Q108	A5
Q109	A5
Q110	A5
Q111	A5
Q112	A5
Q113	A5
Q114	A6
Q115	A6
Q116	A6
Q117	A2
Q118	A2
Q119	A2
Q120	A2
Q121	A4
Q122	A4
Q123	A2
Q201	B3
Q202	A3
Q203	A5
Q204	B5
Q205	A5
Q206	A5
Q207	B5
Q208	B5
Q209	A5
Q210	A5
Q211	B6
Q212	A6
Q213	A6
Q214	A6
Q215	B6
Q216	B6
Q217	A2
Q218	A2
Q219	B2
Q220	B2
Q221	A5
Q222	B5
Q223	A2
Q301	B3
Q302	B3
Q303	B5
Q304	B5
Q305	B5
Q306	B5
Q307	B5
Q308	B5
Q309	B5
Q310	B5
Q311	B5
Q312	B5
Q313	B5
Q314	B6
Q315	B6
Q316	B6
Q317	B2
Q318	B2
Q319	B2
Q320	B2
Q321	B5
Q322	B5
Q323	B2
Q324	B2

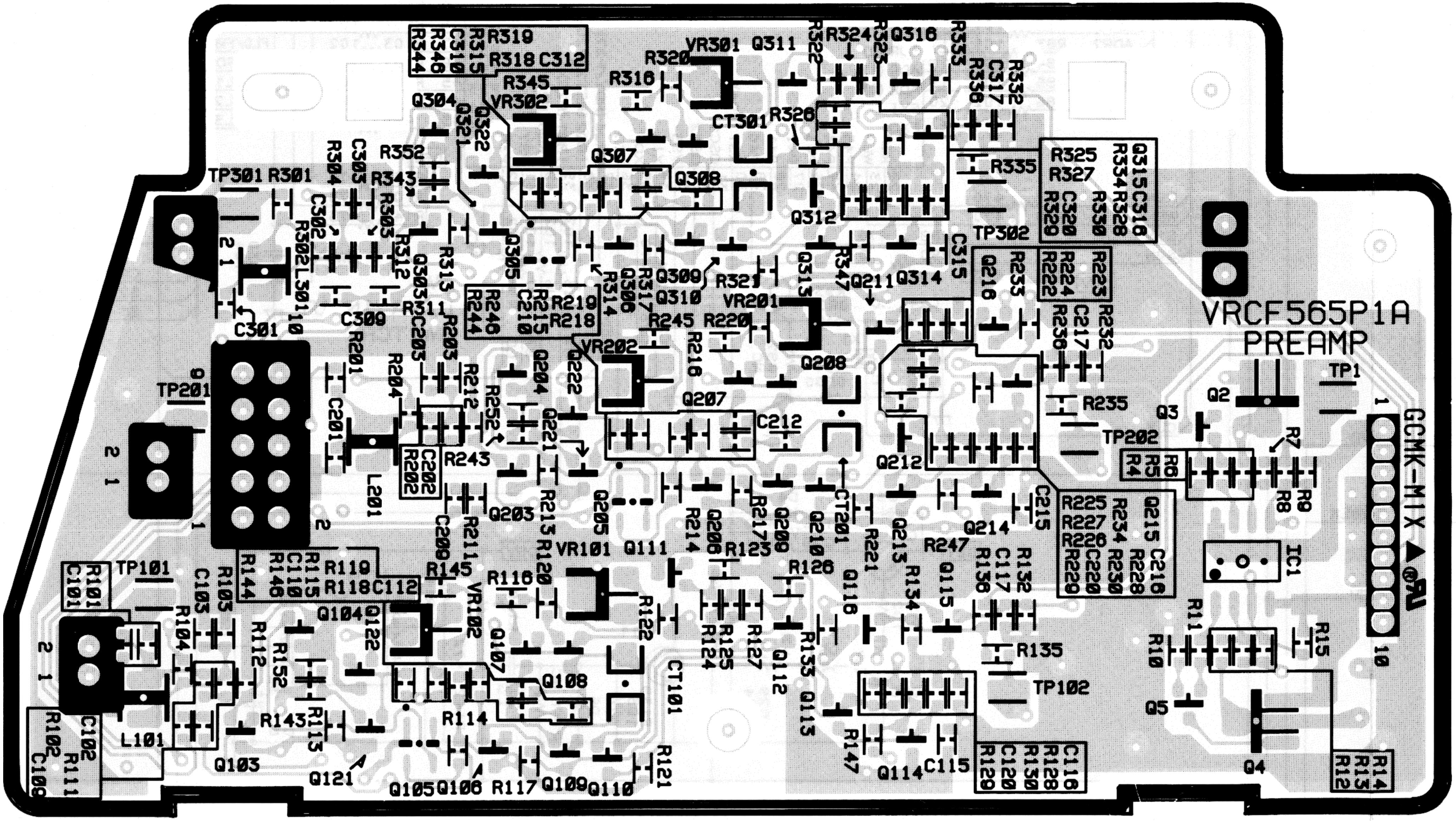
PREAMP


B
A
1
VRCF565P1A
PREAMP
CF202
CF203
C5
C3
C4
COMPONENT SIDE
INTERMEDIATE PATTE

PREAMP BOARD


VRCF565P1A
PREAMP
(COMPONENT SIDE VIEW)
COMPONENT SIDE
INTERMEDIATE PATTERN
A
B
1
2
3
CN1
CN2
CN3
CN101
E1
C1
C2
C3
C4
C5
C104
C105
C106
C107
C108
C111
C114
C118
C119
C121
C204
C205
C206
C207
C208
C211
C214
C218
C219
C221
C304
C305
C306
C307
C308
C311
C314
C318
C319
C321
CF102
CF103
CF202
CF203
CF302
CF303
IC101
IC201
IC301
Q1
Q101
Q102
Q117
Q118
Q119
Q120
Q123
Q201
Q202
Q217
Q218
Q219
Q220
Q223
Q301
Q302
Q317
Q318
Q319
Q320
Q323
Q324
R1
R2
R3
R105
R106
R107
R108
R109
R110
R131
R137
R138
R139
R140
R141
R142
R148
R149
R205
R206
R207
R208
R209
R210
R231
R237
R238
R239
R240
R241
R242
R248
R249
R305
R306
R307
R308
R309
R310
R331
R337
R338
R339
R340
R341
R342
R348
R349
R350
R351

PREAMP BOARD


VRCF565P1A
PREAMP
GCMK-MIX
1
10
TP1
Q2
Q3
R7
R9
R8
R6
R5
R4
IC1
R15
R11
R10
Q4
Q5
R14
R13
R12
TP202
R235
R232
C217
R236
R223
R224
R222
R233
Q216
Q215
C216
R228
R234
R230
R225
R227
R226
C220
R229
C215
Q214
R247
Q212
Q213
R221
CT201
Q208
Q210
Q209
R217
R123
R126
Q206
R214
Q207
C212
Q205
Q111
VR101
R120
R116
R122
CT101
R121
Q110
Q109
R117
Q108
Q107
R114
Q106
Q105
Q121
Q104
Q122
VR102
R145
C112
R118
R119
R115
C110
R146
R144
R113
R143
R152
R112
R103
C103
R104
Q103
L101
TP101
R101
C101
C102
R111
R102
C109
R132
C117
R136
R135
TP102
C116
R128
R130
C120
R129
Q115
R134
Q116
Q114
C115
R147
R133
Q113
Q112
R127
R125
R124
Q315
C316
R334
R328
R330
R325
R327
C320
R329
R332
C317
R336
R335
TP302
R333
Q316
R323
R324
R322
C315
Q314
Q211
R347
Q313
Q312
R326
Q311
VR301
CT301
VR201
R321
R220
Q309
Q310
R245
R216
R320
R316
Q308
Q307
R317
Q306
R314
VR202
R219
R218
R215
C210
R246
R244
Q222
Q204
Q221
R213
Q203
R252
R243
R212
R211
C209
R203
C203
R311
C202
R202
R204
L201
R201
C201
C309
R319
R318
C312
R345
VR302
R315
C310
R346
R344
Q305
Q322
Q321
Q304
R313
Q303
R352
R343
R312
R303
C303
R304
C302
R302
L301
R301
TP301
C301
TP201
9
2
1

(PATTERN SIDE VIEW)

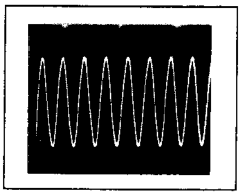
▨ PATTERN SIDE

INTERMEDIATE PATTERN

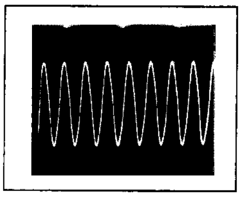
4 5 6

SYSTEM CONTROL BOARD

1. 0.1µsec/DIV, 1V/DIV



2. 0.1µsec/DIV, 1V/DIV

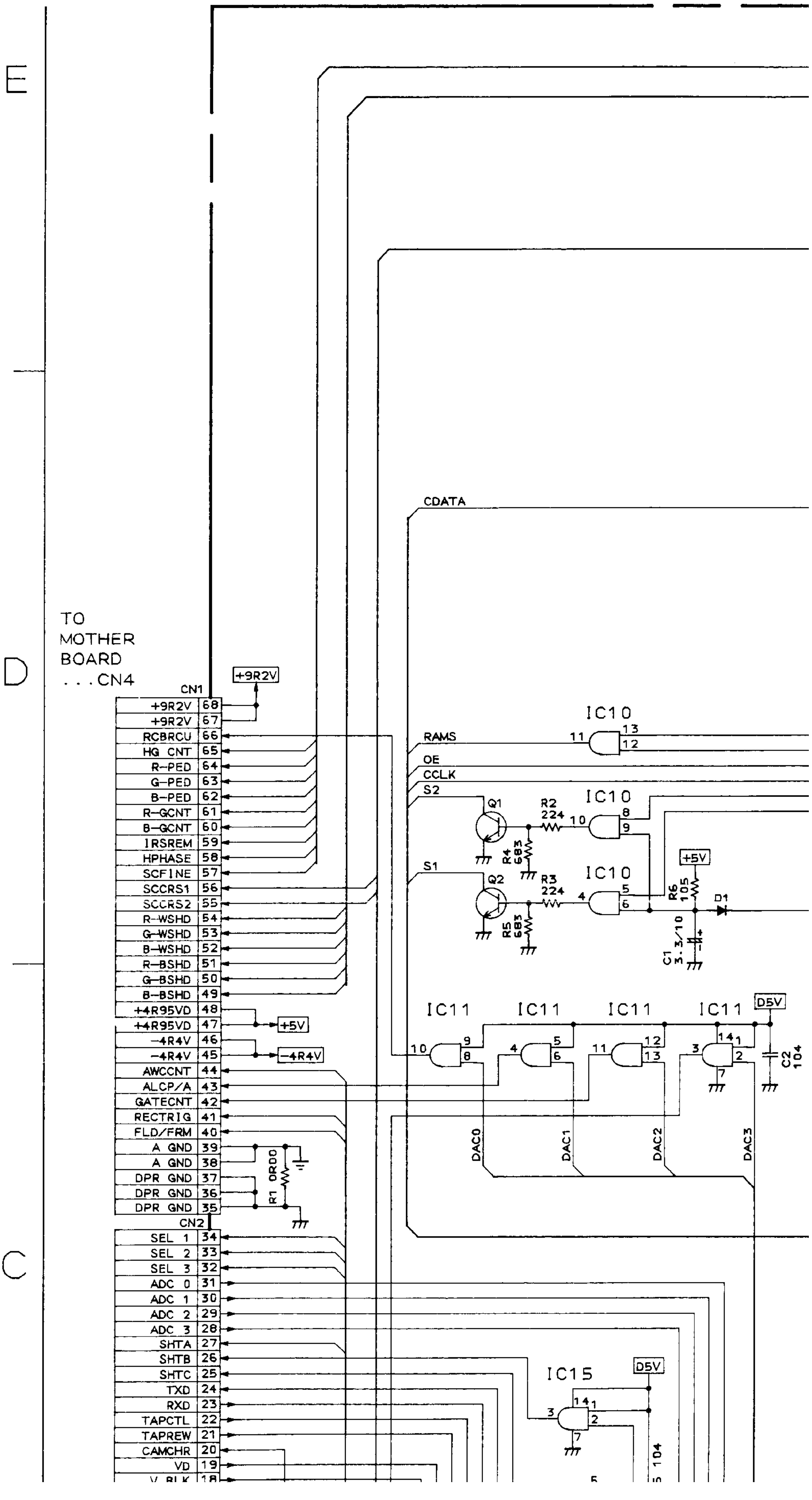


<Index>

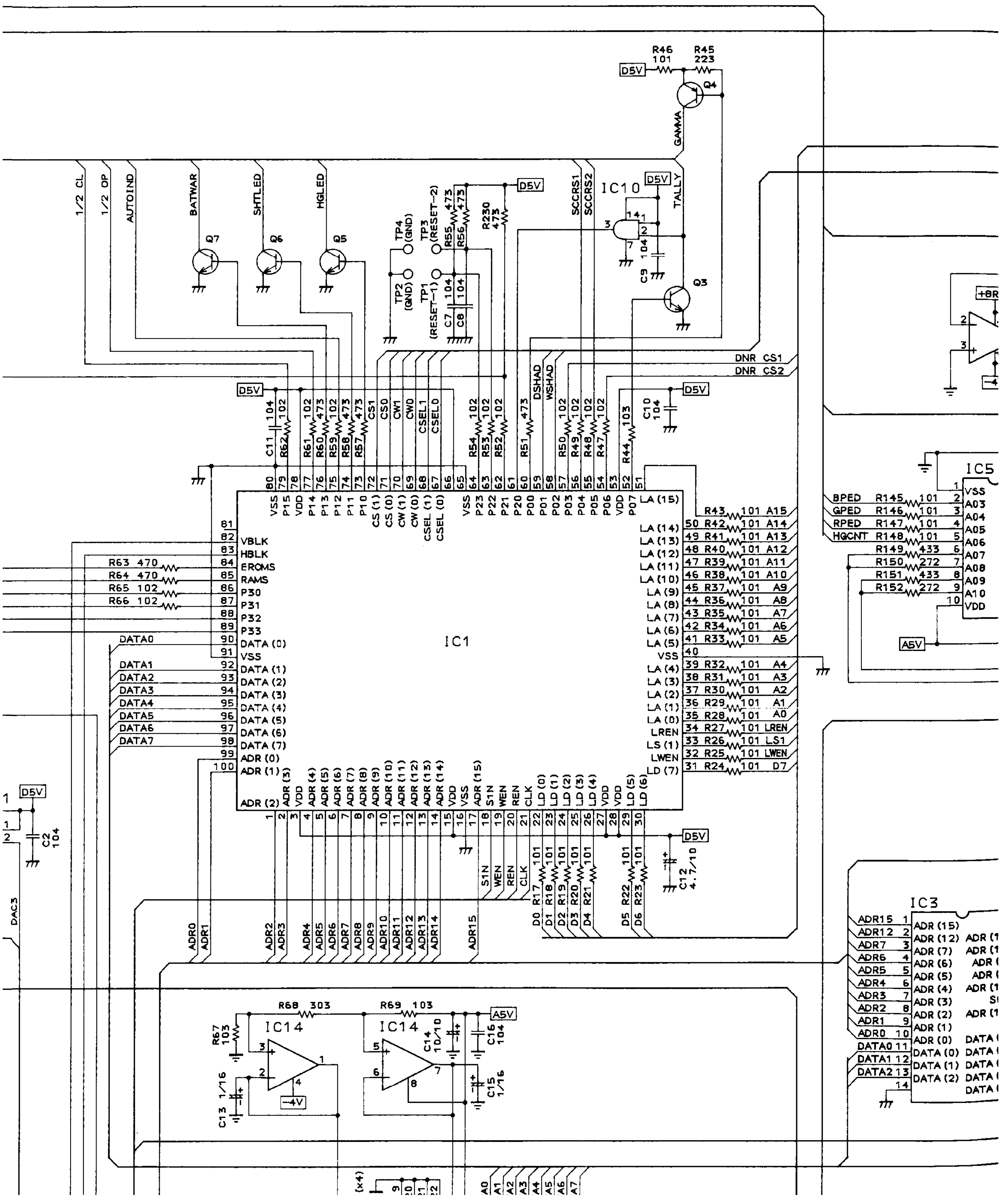
SYSTEM CONTROL BOARD

IC1	D2
IC2	B3
IC3	C3
IC4	C4
IC5	D4
IC6	D4
IC7	B4
IC8	B4
IC9	A3
IC10	D1, E3
IC11	C1, C2
IC12	B1
IC13	A1
IC14	C2
IC15	B4, C1, C5
IC16	B3, C5
IC17	C5
IC18	A5, A6
IC19	D6
IC20	D6
IC21	C6
IC22	C6
IC23	B6
IC24	B6
Q1	D1
Q2	D1
Q3	D3
Q4	E3
Q5	E2
Q6	E2
Q7	E2
Q8	C3
Q9	A2
Q10	A2
Q11	A3
Q12	B4
Q13	B4
Q14	C5
Q15	C5
Q16	A5
Q17	A5
Q18	A5
Q19	A5
Q20	A6
Q21	A6
D1	D2
D2	B1
D3	A2
D4	A2
D5	A2
D6	A3

SYSTEM CONTROL BOARD

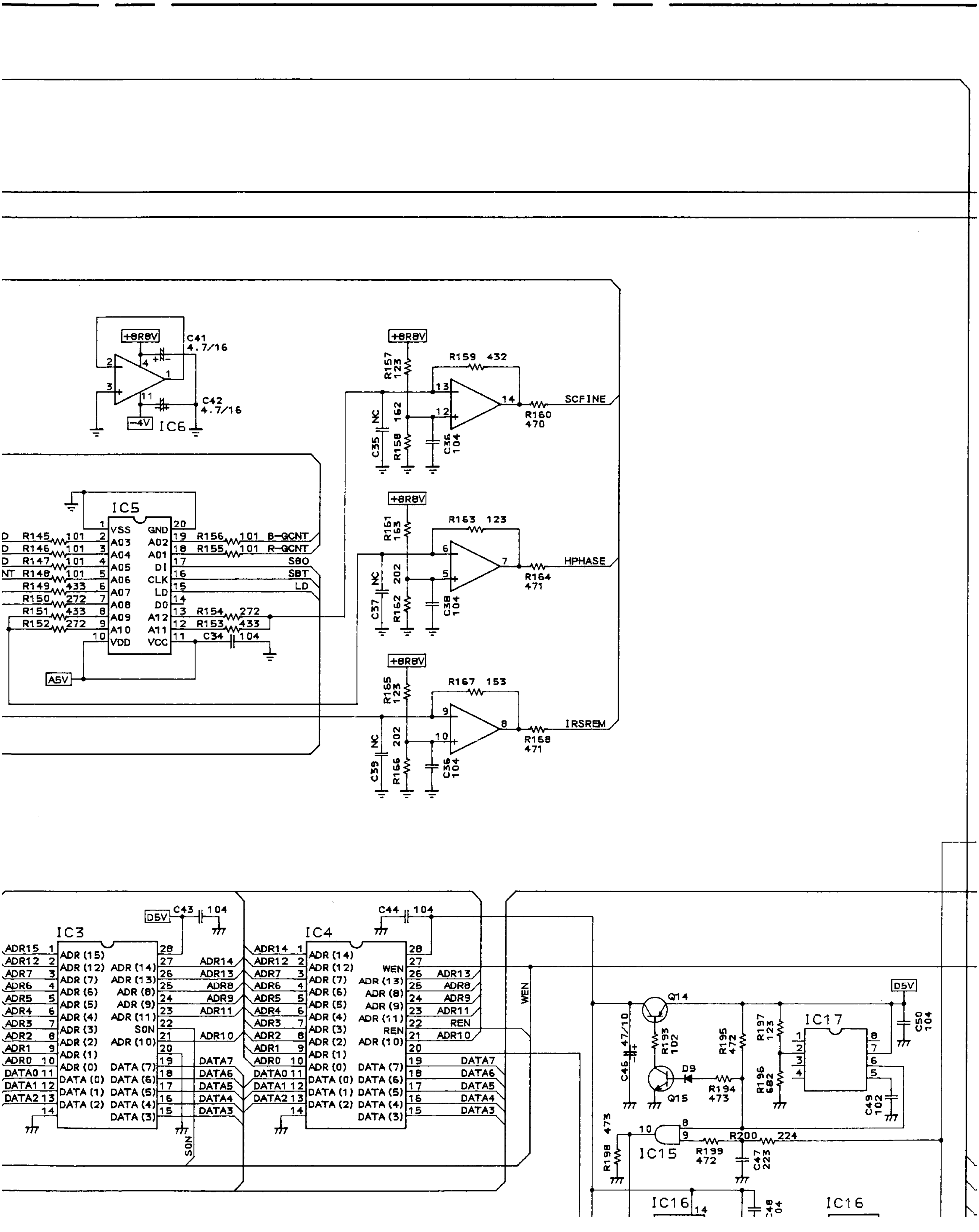

E
D
C
TO
MOTHER
BOARD
. . . CN4
CN1
+9R2V 68
+9R2V 67
RCBRCU 66
HG CNT 65
R-PED 64
G-PED 63
B-PED 62
R-GCNT 61
B-GCNT 60
IRSREM 59
HPHASE 58
SCFINE 57
SCCRS1 56
SCCRS2 55
R-WSHD 54
G-WSHD 53
B-WSHD 52
R-BSHD 51
G-BSHD 50
B-BSHD 49
+4R95VD 48
+4R95VD 47
-4R4V 46
-4R4V 45
AWCCNT 44
ALCP/A 43
GATECNT 42
RECTRIG 41
FLD/FRM 40
A GND 39
A GND 38
DPR GND 37
DPR GND 36
DPR GND 35
CN2
SEL 1 34
SEL 2 33
SEL 3 32
ADC 0 31
ADC 1 30
ADC 2 29
ADC 3 28
SHTA 27
SHTB 26
SHTC 25
TXD 24
RXD 23
TAPCTL 22
TAPREW 21
CAMCHR 20
VD 19
+9R2V
+5V
-4R4V
R1 0RD0
CDATA
RAMS
OE
CCLK
S2
S1
IC10
11
13
12
Q1
R2 224
10
8
9
R4 683
Q2
R3 224
4
5
6
R5 683
+5V
R6 105
D1
C1 3.3/10
IC11
10
9
8
4
5
6
11
12
13
3
14
1
2
7
D5V
C2 104
DAC0
DAC1
DAC2
DAC3
IC15
D5V
3
14
1
2
7
104

SCHEMATIC DIAGRAM OF S

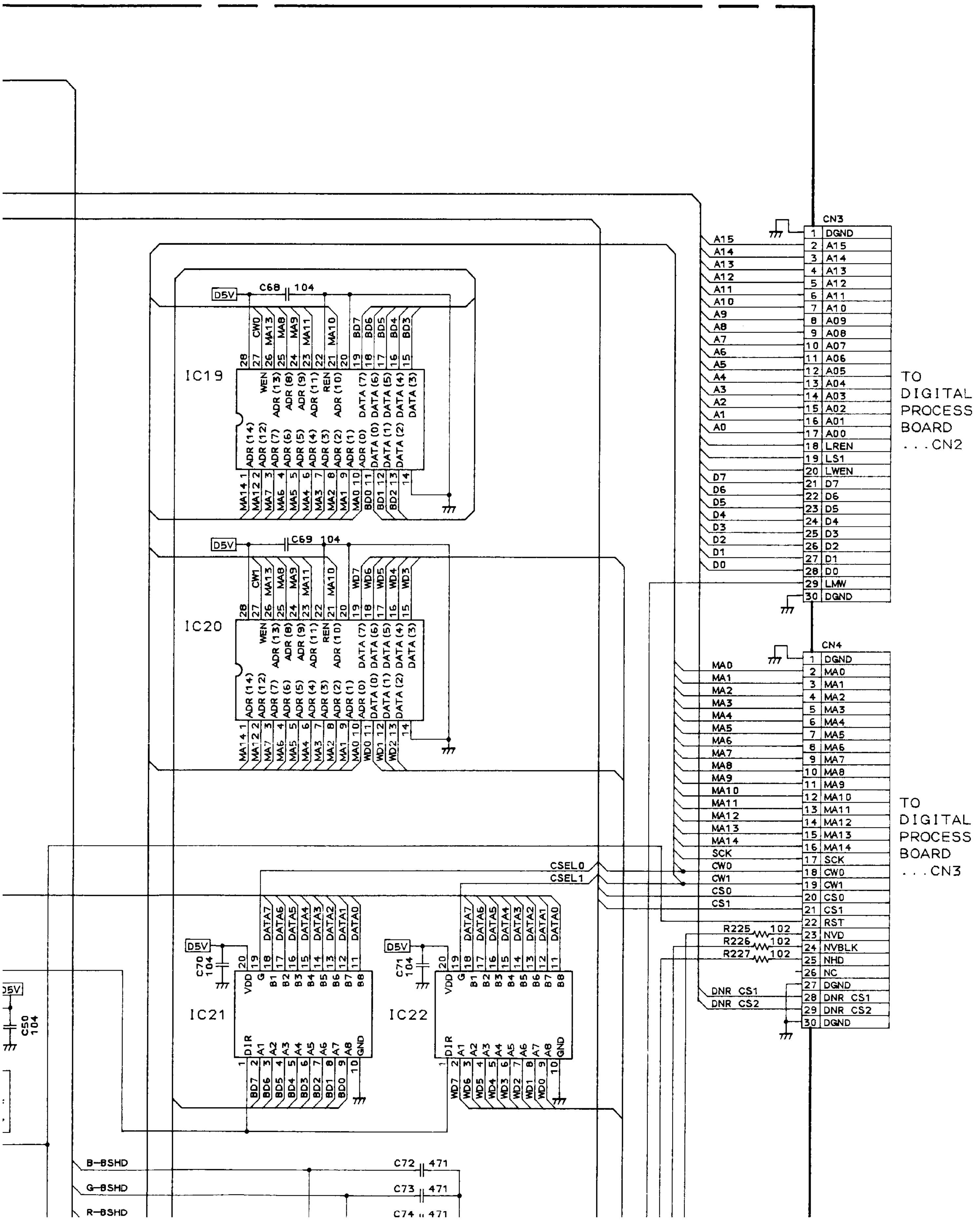


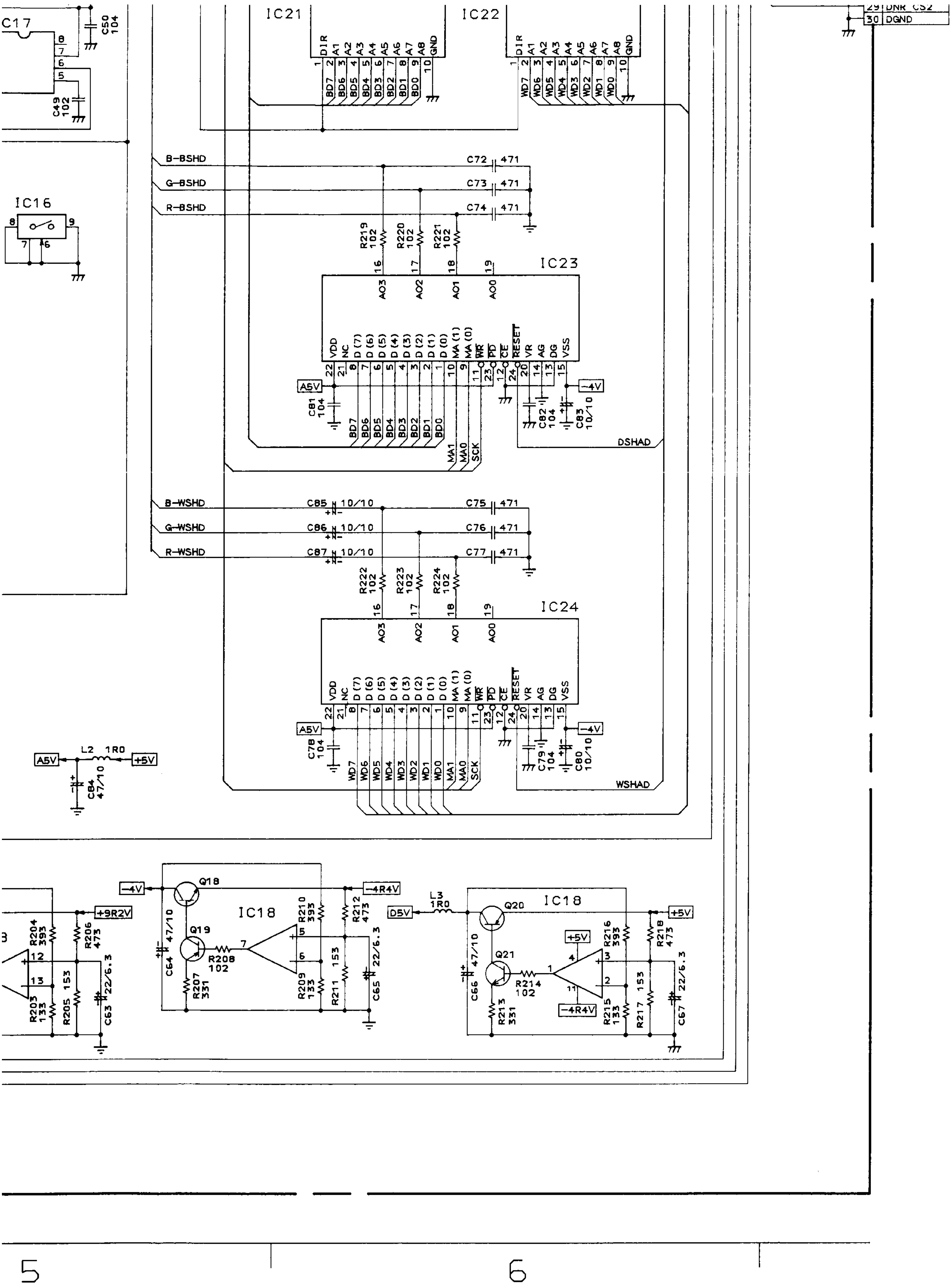
R46 101
R45 223
D5V
Q4
GAMMA
1/2 CL
1/2 OP
AUTOIND
BATWAR
SHTLED
HGLED
Q7
Q6
Q5
TP4 (GND)
TP3 (RESET-2)
TP2 (GND)
TP1 (RESET-1)
R55 473
R56 473
R230 473
C7 104
C8 104
SCCRS1
SCCRS2
IC10
TALLY
C9 104
Q3
DNR CS1
DNR CS2
DSHAD
WSHAD
C10 104
C11 104
R62 102
R61 102
R60 473
R59 102
R58 473
R57 473
CS1
CS0
CW1
CW0
CSEL1
CSEL0
R54 102
R53 102
R52 102
R51 473
R50 102
R49 102
R48 102
R47 102
R44 103
IC1
VSS P15 VDD P14 P13 P12 P11 P10 CS (1) CS (0) CW (1) CW (0) CSEL (1) CSEL (0) VSS P23 P22 P21 P20 P00 P01 P02 P03 P04 P05 P06 VDD P07
VBLK
HBLK
R63 470 EROMS
R64 470 RAMS
R65 102 P30
R66 102 P31
P32
P33
DATA0 DATA (0)
VSS
DATA1 DATA (1)
DATA2 DATA (2)
DATA3 DATA (3)
DATA4 DATA (4)
DATA5 DATA (5)
DATA6 DATA (6)
DATA7 DATA (7)
ADR (0)
ADR (1)
ADR (2)
LA (15) R43 101 A15
LA (14) R42 101 A14
LA (13) R41 101 A13
LA (12) R40 101 A12
LA (11) R39 101 A11
LA (10) R38 101 A10
LA (9) R37 101 A9
LA (8) R36 101 A8
LA (7) R35 101 A7
LA (6) R34 101 A6
LA (5) R33 101 A5
VSS
LA (4) R32 101 A4
LA (3) R31 101 A3
LA (2) R30 101 A2
LA (1) R29 101 A1
LA (0) R28 101 A0
LREN R27 101 LREN
LS (1) R26 101 LS1
LWEN R25 101 LWEN
LD (7) R24 101 D7
ADR (3) VDD ADR (4) ADR (5) ADR (6) ADR (7) ADR (8) ADR (9) ADR (10) ADR (11) ADR (12) ADR (13) ADR (14) VDD VSS ADR (15) S1N WEN REN CLK LD (0) LD (1) LD (2) LD (3) LD (4) VDD VDD LD (5) LD (6)
C2 104
DAC3
R17 101
R18 101
R19 101
R20 101
R21 101
R22 101
R23 101
C12 4.7/10
S1N WEN REN CLK
D0 D1 D2 D3 D4 D5 D6
ADR0 ADR1 ADR2 ADR3 ADR4 ADR5 ADR6 ADR7 ADR8 ADR9 ADR10 ADR11 ADR12 ADR13 ADR14 ADR15
+8R
-4
IC5
BPED R145 101
GPED R146 101
RPED R147 101
HGCNT R148 101
R149 433
R150 272
R151 433
R152 272
VSS A03 A04 A05 A06 A07 A08 A09 A10 VDD
A5V
IC3
ADR15 ADR (15)
ADR12 ADR (12)
ADR7 ADR (7)
ADR6 ADR (6)
ADR5 ADR (5)
ADR4 ADR (4)
ADR3 ADR (3)
ADR2 ADR (2)
ADR1 ADR (1)
ADR0 ADR (0)
DATA0 DATA (0)
DATA1 DATA (1)
DATA2 DATA (2)
R68 303
R69 103
R67 103
IC14
IC14
C13 1/16
-4V
A5V
C14 10/10
C16 104
C15 1/16
(x4)
A0 A1 A2 A3 A4 A5 A6 A7

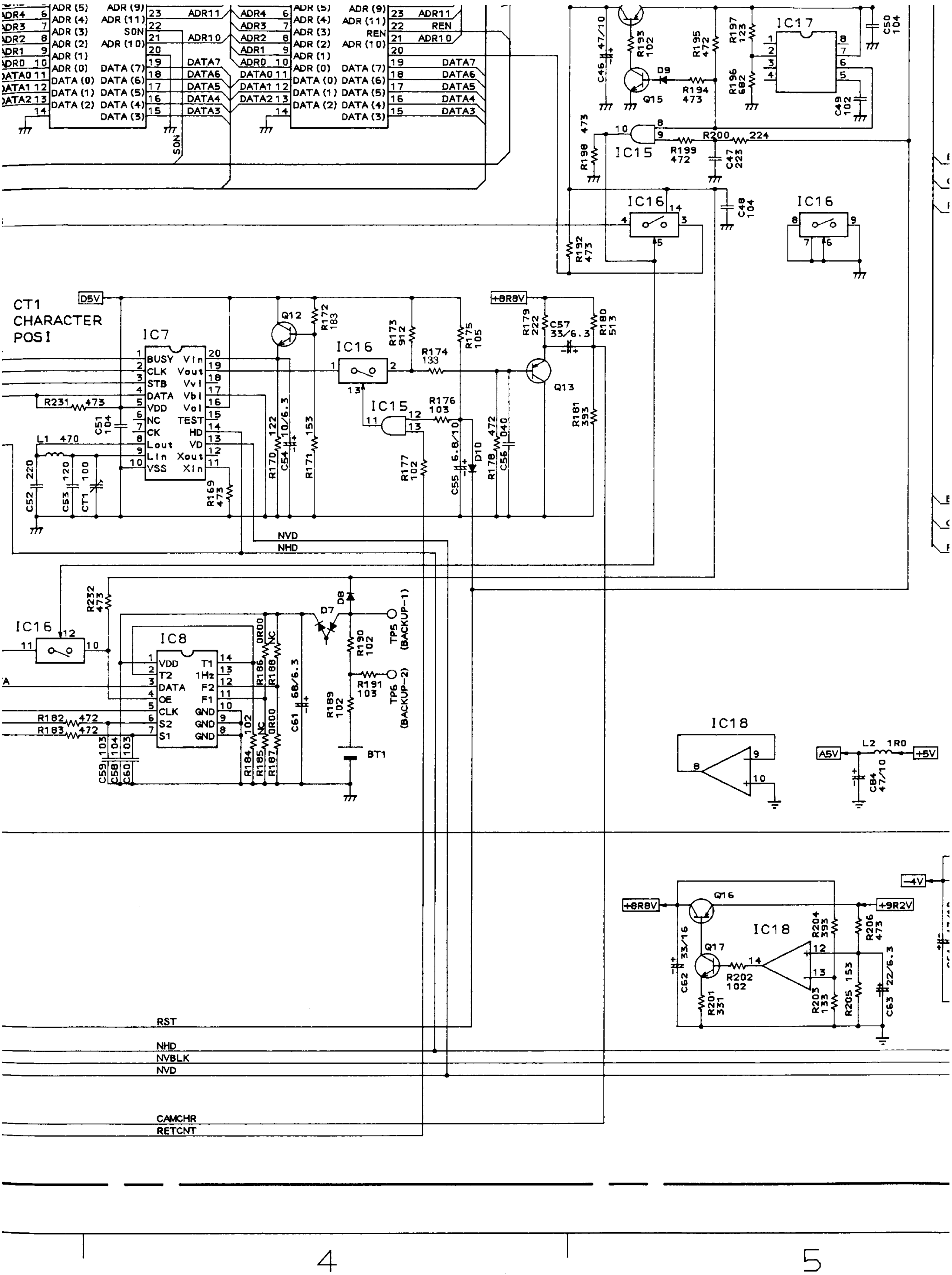
AM OF SYSTEM CONTROL BOARD

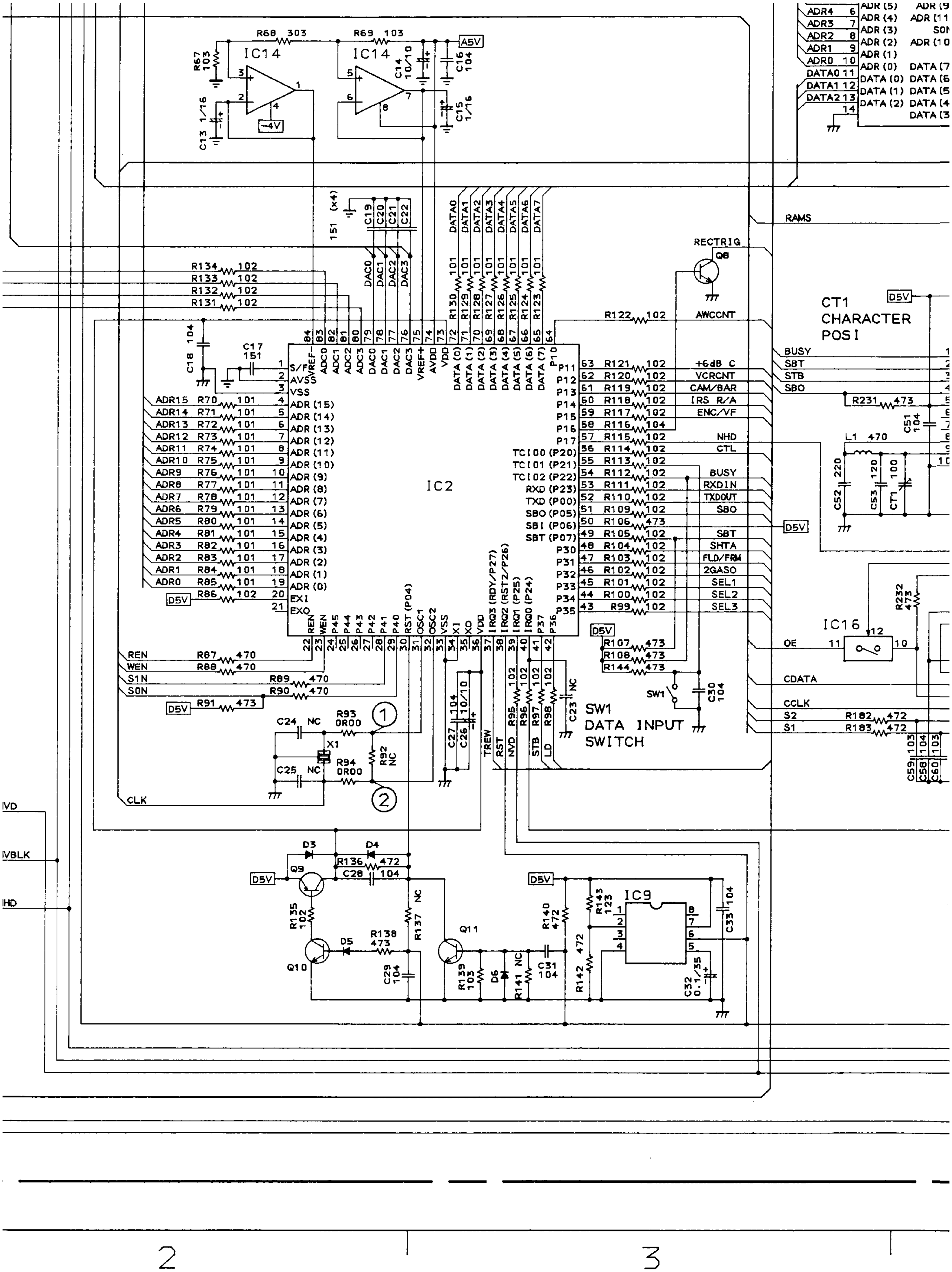


+8R8V
C41
4.7/16
C42
4.7/16
-4V
IC6
IC5
VSS
A03
A04
A05
A06
A07
A08
A09
A10
VDD
GND
A02
A01
DI
CLK
LD
DO
A12
A11
VCC
R145 101
R146 101
R147 101
R148 101
R149 433
R150 272
R151 433
R152 272
R156 101
R155 101
R154 272
R153 433
C34 104
B-GCNT
R-GCNT
SBO
SBT
LD
A5V
R157 123
R159 432
NC
C35
162
R158
C36 104
R160 470
SCFINE
R151 163
R163 123
NC
C37
202
R162
C38 104
R164 471
HPHASE
R165 123
R167 153
NC
C39
202
R166
C36 104
R168 471
IRSREM
IC3
D5V
C43 104
ADR15
ADR12
ADR7
ADR6
ADR5
ADR4
ADR3
ADR2
ADR1
ADR0
DATA0
DATA1
DATA2
ADR (15)
ADR (12)
ADR (7)
ADR (6)
ADR (5)
ADR (4)
ADR (3)
ADR (2)
ADR (1)
ADR (0)
DATA (0)
DATA (1)
DATA (2)
ADR (14)
ADR (13)
ADR (8)
ADR (9)
ADR (11)
SON
ADR (10)
DATA (7)
DATA (6)
DATA (5)
DATA (4)
DATA (3)
ADR14
ADR13
ADR8
ADR9
ADR11
ADR10
DATA7
DATA6
DATA5
DATA4
DATA3
SON
IC4
C44 104
WEN
REN
ADR (14)
ADR (12)
ADR (13)
WEN
Q14
Q15
R193 102
D9
R194 473
C46 47/10
R195 472
R197 123
R196 682
IC17
C50 104
C49 102
D5V
R198 473
IC15
R199 472
R200 224
C47 223
IC16
IC16


CN3
1 DGND
2 A15
3 A14
4 A13
5 A12
6 A11
7 A10
8 A09
9 A08
10 A07
11 A06
12 A05
13 A04
14 A03
15 A02
16 A01
17 A00
18 LREN
19 LS1
20 LWEN
21 D7
22 D6
23 D5
24 D4
25 D3
26 D2
27 D1
28 D0
29 LMW
30 DGND
TO DIGITAL PROCESS BOARD ...CN2
CN4
1 DGND
2 MA0
3 MA1
4 MA2
5 MA3
6 MA4
7 MA5
8 MA6
9 MA7
10 MA8
11 MA9
12 MA10
13 MA11
14 MA12
15 MA13
16 MA14
17 SCK
18 CW0
19 CW1
20 CS0
21 CS1
22 RST
23 NVD
24 NVBLK
25 NHD
26 NC
27 DGND
28 DNR CS1
29 DNR CS2
30 DGND
TO DIGITAL PROCESS BOARD ...CN3
IC19
IC20
IC21
IC22
D5V
C68 104
C69 104
C70 104
C71 104
C50 104
C72 471
C73 471
C74 471
R225 102
R226 102
R227 102
CSEL0
CSEL1
B-BSHD
G-BSHD
R-BSHD
WEN
REN
ADR (14) ADR (13) ADR (12) ADR (11) ADR (10) ADR (9) ADR (8) ADR (7) ADR (6) ADR (5) ADR (4) ADR (3) ADR (2) ADR (1) ADR (0)
DATA (7) DATA (6) DATA (5) DATA (4) DATA (3) DATA (2) DATA (1) DATA (0)
CW0 CW1 MA14 MA13 MA12 MA11 MA10 MA9 MA8 MA7 MA6 MA5 MA4 MA3 MA2 MA1 MA0
BD7 BD6 BD5 BD4 BD3 BD2 BD1 BD0
WD7 WD6 WD5 WD4 WD3 WD2 WD1 WD0
VDD G B1 B2 B3 B4 B5 B6 B7 B8
DIR A1 A2 A3 A4 A5 A6 A7 A8 GND
DATA7 DATA6 DATA5 DATA4 DATA3 DATA2 DATA1 DATA0
A15 A14 A13 A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0
D7 D6 D5 D4 D3 D2 D1 D0
SCK CW0 CW1 CS0 CS1
DNR CS1
DNR CS2


IC17
C50 104
C49 102
IC21
IC22
DIR A1 A2 A3 A4 A5 A6 A7 A8 GND
BD7 BD6 BD5 BD4 BD3 BD2 BD1 BD0
WD7 WD6 WD5 WD4 WD3 WD2 WD1 WD0
29 DNR CS2
30 DGND
IC16
B-BSHD
G-BSHD
R-BSHD
C72 471
C73 471
C74 471
R219 102
R220 102
R221 102
IC23
AO3 AO2 AO1 AO0
VDD NC D(7) D(6) D(5) D(4) D(3) D(2) D(1) D(0) MA(1) MA(0) WR PD CE RESET VR AG DG VSS
A5V
-4V
C81 104
C82 104
C83 10/10
MA1 MA0 SCK
DSHAD
B-WSHD
G-WSHD
R-WSHD
C85 10/10
C86 10/10
C87 10/10
C75 471
C76 471
C77 471
R222 102
R223 102
R224 102
IC24
C78 104
C79 104
C80 10/10
WSHAD
L2 1R0
A5V
+5V
C84 47/10
-4V
Q18
-4R4V
+9R2V
R204 393
R206 473
R203 133
R205 153
C63 22/6.3
Q19
C64 47/10
R207 331
R208 102
IC18
R210 393
R212 473
R209 133
R211 153
C65 22/6.3
D5V
L3 1R0
Q20
+5V
Q21
C66 47/10
R213 331
R214 102
R216 393
R218 473
R215 133
R217 153
C67 22/6.3
-4R4V
5
6


ADR (5)
ADR (4)
ADR (3)
ADR (2)
ADR (1)
ADR (0)
DATA (0)
DATA (1)
DATA (2)
ADR (9)
ADR (11)
S0N
ADR (10)
DATA (7)
DATA (6)
DATA (5)
DATA (4)
DATA (3)
ADR4
ADR3
ADR2
ADR1
ADR0
DATA0
DATA1
DATA2
ADR11
ADR10
DATA7
DATA6
DATA5
DATA4
DATA3
S0N
REN
R193 102
C46 47/10
D9
Q15
R194 473
R195 472
R197 123
R196 682
IC17
C50 104
C49 102
R198 473
IC15
R199 472
R200 224
C47 223
IC16
C48 104
R192 473
CT1 CHARACTER POSI
D5V
IC7
BUSY
CLK
STB
DATA
VDD
NC
CK
Lout
Lin
VSS
Vin
Vout
Vvl
Vbl
Vol
TEST
HD
VD
Xout
Xin
R231 473
C51 104
L1 470
C52 220
C53 120
CT1 100
R169 473
Q12
R172 183
R170 122
C54 10/6.3
R171 153
R173 912
R174 133
R175 105
R176 103
R177 102
C55 6.8/10
D10
R178 472
C56 040
+8R8V
R179 222
C57 33/6.3
R180 513
Q13
R181 393
NVD
NHD
R232 473
IC8
VDD
T2
DATA
OE
CLK
S2
S1
T1
1Hz
F2
F1
GND
R182 472
R183 472
C59 103
C58 104
C60 103
R186 0R00
R188 NC
R184 102
R185 NC
R187 0R00
C61 68/6.3
D8
D7
R190 102
TP5 (BACKUP-1)
R191 103
TP6 (BACKUP-2)
R189 102
BT1
IC18
A5V
L2 1R0
+5V
C84 47/10
-4V
Q16
+8R8V
+9R2V
R204 393
R206 473
Q17
C62 33/16
R202 102
R201 331
R203 133
R205 153
C63 22/6.3
RST
NHD
NVBLK
NVD
CAMCHR
RETCNT
4
5


IC2
IC14
IC9
IC16
R68 303
R69 103
A5V
R67 103
C13 1/16
C14 10/10
C15 1/16
C16 104
-4V
DATA0 DATA1 DATA2 DATA3 DATA4 DATA5 DATA6 DATA7
151 (x4)
C19 C20 C21 C22
DAC0 DAC1 DAC2 DAC3
R134 102
R133 102
R132 102
R131 102
R130 R129 R128 R127 R126 R125 R124 R123 101
C18 104
C17 151
S/F
AVSS
VSS
VREF-
ADC0 ADC1 ADC2 ADC3
DAC0 DAC1 DAC2 DAC3
VREF+
AVDD
VDD
DATA (0) DATA (1) DATA (2) DATA (3) DATA (4) DATA (5) DATA (6) DATA (7)
P10
ADR15 R70 101
ADR14 R71 101
ADR13 R72 101
ADR12 R73 101
ADR11 R74 101
ADR10 R75 101
ADR9 R76 101
ADR8 R77 101
ADR7 R78 101
ADR6 R79 101
ADR5 R80 101
ADR4 R81 101
ADR3 R82 101
ADR2 R83 101
ADR1 R84 101
ADR0 R85 101
D5V R86 102
ADR (15) … ADR (0)
EXI
EXO
P11 63 R121 102 +6dB C
P12 62 R120 102 VCRCNT
P13 61 R119 102 CAM/BAR
P14 60 R118 102 IRS R/A
P15 59 R117 102 ENC/VF
P16 58 R116 104
P17 57 R115 102 NHD
TCI00 (P20) 56 R114 102 CTL
TCI01 (P21) 55 R113 102
TCI02 (P22) 54 R112 102 BUSY
RXD (P23) 53 R111 102 RXDIN
TXD (P00) 52 R110 102 TXDOUT
SBO (P05) 51 R109 102 SBO
SBI (P06) 50 R106 473
SBT (P07) 49 R105 102 SBT
P30 48 R104 102 SHTA
P31 47 R103 102 FLD/FRM
P32 46 R102 102 2GASO
P33 45 R101 102 SEL1
P34 44 R100 102 SEL2
P35 43 R99 102 SEL3
R122 102 AWCCNT
RECTRIG
Q8
RAMS
REN WEN P45 P44 P43 P42 P41 P40 RST (P04) OSC1 OSC2 VSS X1 X0 VDD IRQ3 (RDY/P27) IRQ2 (RST2/P26) IRQ1 (P25) IRQ0 (P24) P37 P36
REN R87 470
WEN R88 470
S1N R89 470
S0N R90 470
D5V R91 473
R93 0R00
R94 0R00
C24 NC
C25 NC
X1
R92 NC
①
②
CLK
C27 104
C26 10/10
TREW RST NVD STB LD
R95 R96 R97 R98 102
C23 NC
R107 473
R108 473
R144 473
SW1
C30 104
SW1 DATA INPUT SWITCH
ADR4 6 ADR (5) ADR (9
ADR3 7 ADR (4) ADR (11
ADR2 8 ADR (3) S0N
ADR1 9 ADR (2) ADR (10
ADR0 10 ADR (1)
DATA0 11 ADR (0) DATA (7
DATA1 12 DATA (0) DATA (6
DATA2 13 DATA (1) DATA (5
14 DATA (2) DATA (4
DATA (3
CT1 CHARACTER POSI
D5V
BUSY 1
SBT 2
STB 3
SBO 4
R231 473
C51 104
L1 470
C52 220
C53 120
CT1 100
D5V
R232 473
OE 11 12 10
CDATA
CCLK
S2 R182 472
S1 R183 472
C59 103 C58 104 C60 103
IVD
IVBLK
IHD
D3
D4
R136 472
C28 104
Q9
D5V
R135 102
Q10
D5
R138 473
R137 NC
C29 104
Q11
R139 103
D6
R141 NC
C31 104
D5V
R140 472
R143 123
R142 472
C33 104
C32 0.1/35
2
3

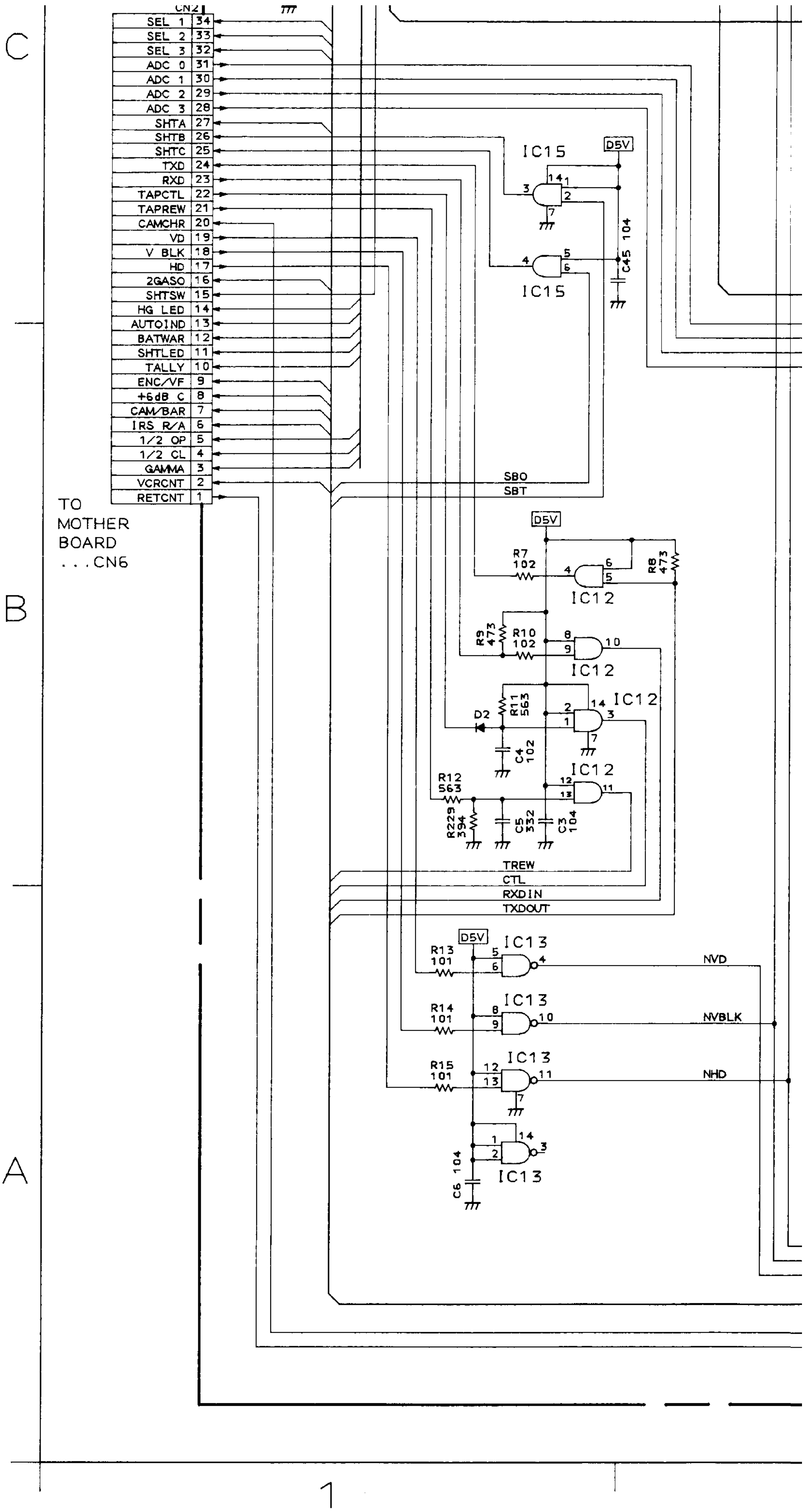
Q16	A5
Q17	A5
Q18	A5
Q19	A5
Q20	A6
Q21	A6
D1	D2
D2	B1
D3	A2
D4	A2
D5	A2
D6	A3
D7	B4
D8	B4
D9	C5
D10	B4

SYSTEM CONTROL BOARD

	IC7	IC8	IC9	IC10	IC11	IC12	IC13	IC14
Pin 1	0	2.1	1.6	4.7	4.7	4.7	4.7	1.0
2	4.7	0	1.7	4.9	1.0	4.7	4.7	1.0
3	0	4.7	1.6	4.7	0	4.7	0	1.0
4	4.7	4.7	0	0	4.7	4.7	4.6	-4.3
5	4.7	4.7	1.2	0	4.7	4.7	4.7	3.9
6	-	2.1	4.4	3.7	3.9	4.7	0.1	3.9
7	2.5	2.1	4.7	0	0	0	0	3.9
8	2.3	0		0	3.9	4.7	4.7	4.9
9	2.2	0		3.7	4.7	4.9	0.4	
10	0	0		0	4.7	4.7	4.4	
11	4.5	2.1		4.7	4.7	0	4.3	
12	4.7	0		4.6	4.7	4.7	4.7	
13	4.4	0		4.7	3.9	0	0.5	
14	4.3	0		4.7	4.7	4.7	4.7	
15	0							
16	4.7							
17	0							
18	0							
19	2.4							
20	2.4							
21								
22								
23								
24								

	IC15	IC16	IC18	IC21	IC22	IC23	IC24
Pin 1	4.7	2.4	0.6	4.6	4.6	0	4.0
2	4.7	2.5	1.2	1.6	0.2	0	4.0
3	4.7	4.4	1.2	2.9	4.0	0	4.0
4	4.7	4.7	0.9	0	4.0	0	4.0
5	4.7	4.7	-1.1	0	4.0	0.2	4.0
6	4.7	0	-1.1	0	4.0	0	4.0
7	0	0	-0.5	0	4.0	2.9	4.0
8	4.4	0	0	0	4.0	1.6	0.2
9	4.3	0	0	0	4.0	2.3	2.3
10	4.7	4.7	0	0	0	2.3	2.3
11	4.7	4.7	-4.4	1.7	1.7	2.3	2.2
12	4.2	4.7	2.2	-	-	0	0
13	4.2	4.7	2.2	-	-	0	0
14	4.7	4.7	0.5	-	-	0	0
15				-	-	-4.3	-4.3
16				-	-	0	0
17				-	-	0	0
18				-	-	0	0
19				4.7	4.7	0	0
20				4.7	4.7	2.5	2,5
21						-	-
22						4.9	4.9
23						4.9	4.9
24						0	0

	B	C	E
Q1	0	2.1	0
9	4.0	4.7	4.7
10	0.7	0.1	0
11	0	4.7	0
12	3.1	4.7	2.4
16	8.6	8.9	9.2
17	0.5	8.6	0
18	-3.8	-4.3	-4.4
19	-0.5	-3.8	0
21	0.6	4.3	0.1

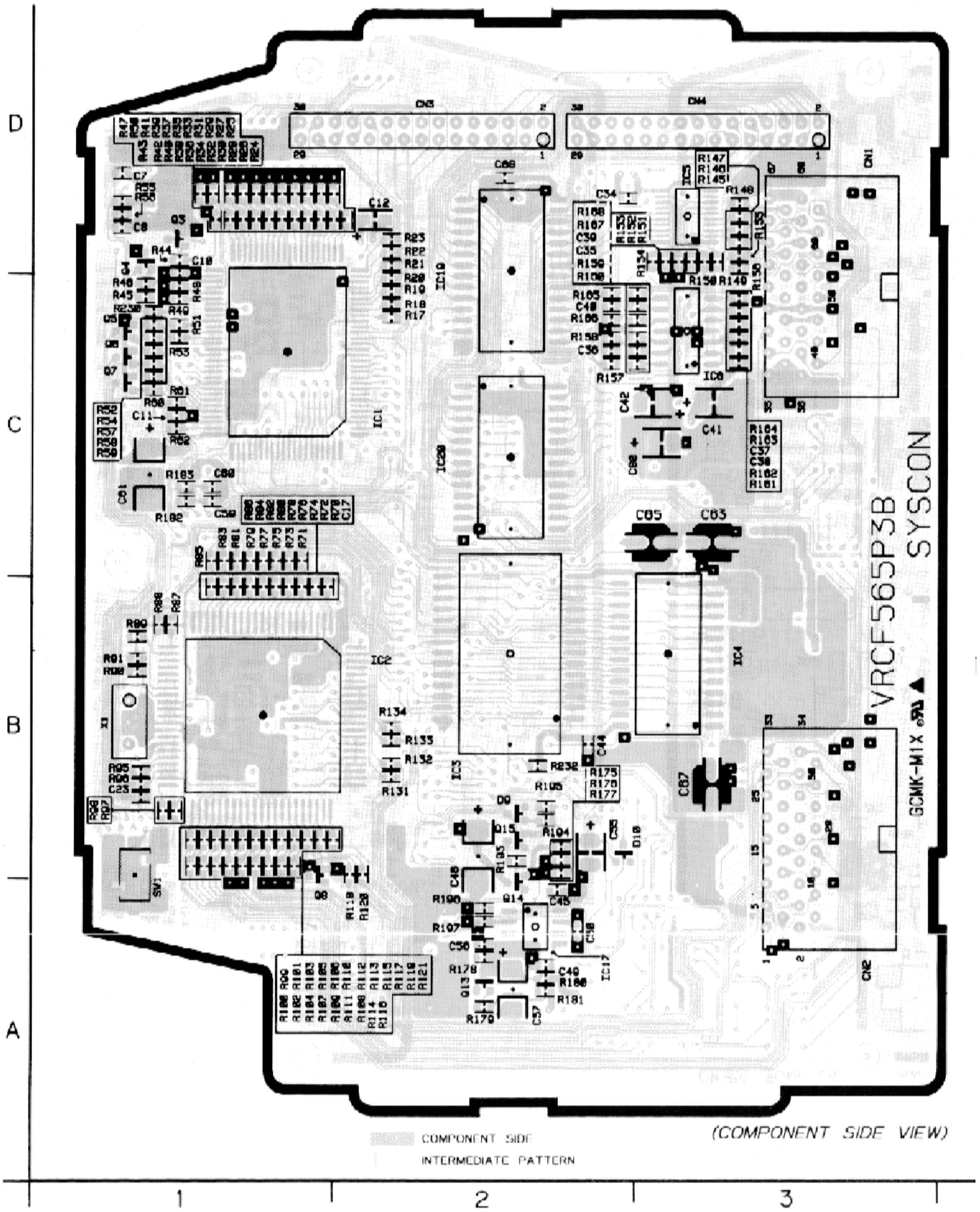

C
B
A
1
CN2
SEL 1 34
SEL 2 33
SEL 3 32
ADC 0 31
ADC 1 30
ADC 2 29
ADC 3 28
SHTA 27
SHTB 26
SHTC 25
TXD 24
RXD 23
TAPCTL 22
TAPREW 21
CAMCHR 20
VD 19
V BLK 18
HD 17
2GASO 16
SHTSW 15
HG LED 14
AUTOIND 13
BATWAR 12
SHTLED 11
TALLY 10
ENC/VF 9
+6dB C 8
CAM/BAR 7
IRS R/A 6
1/2 OP 5
1/2 CL 4
GAMMA 3
VCRCNT 2
RETCNT 1
TO MOTHER BOARD . . . CN6
IC15
D5V
C45 104
SBO
SBT
R7 102
R8 473
IC12
R9 473
R10 102
D2
R11 563
C4 102
R12 563
R229 394
C5 332
C3 104
TREW
CTL
RXDIN
TXDOUT
IC13
R13 101
R14 101
R15 101
NVD
NVBLK
NHD
C6 104

CONDUCTOR VIEW OF SYSTEM

<Index>

SYSTEM CONTROL BOARD	
IC1	C1/C2/D1/D2
IC2	B1/B2
IC3	B2/C2
IC4	B3/C3
IC5	D3
IC6	C3
IC7	A6
IC8	C6
IC9	B6
IC10	C6
IC11	C4
IC12	A5/B5
IC13	A5
IC14	B6/C6
IC15	A5/B5
IC16	A5
IC17	A2
IC18	B5
IC19	C2/D2
IC20	C2
IC21	C5/D5
IC22	C5
IC23	C5/D5
IC24	C5
Q1	C6
Q2	C6
Q3	D1
Q4	D1
Q5	C1
Q6	C1
Q7	C1
Q8	A1/B1
Q9	B6
Q10	B6
Q11	B6
Q12	A5
Q13	A2
Q14	A2/B2
Q15	B2
Q16	B4
Q17	B5
Q18	B5/C5
Q19	C5
Q20	B5
Q21	B5
D1	C6
D2	A5
D3	B6
D4	B6
D5	B6
D6	B6
D7	C6
D8	C6
D9	B2
D10	B2

SYSTEM CONTROL BOARD

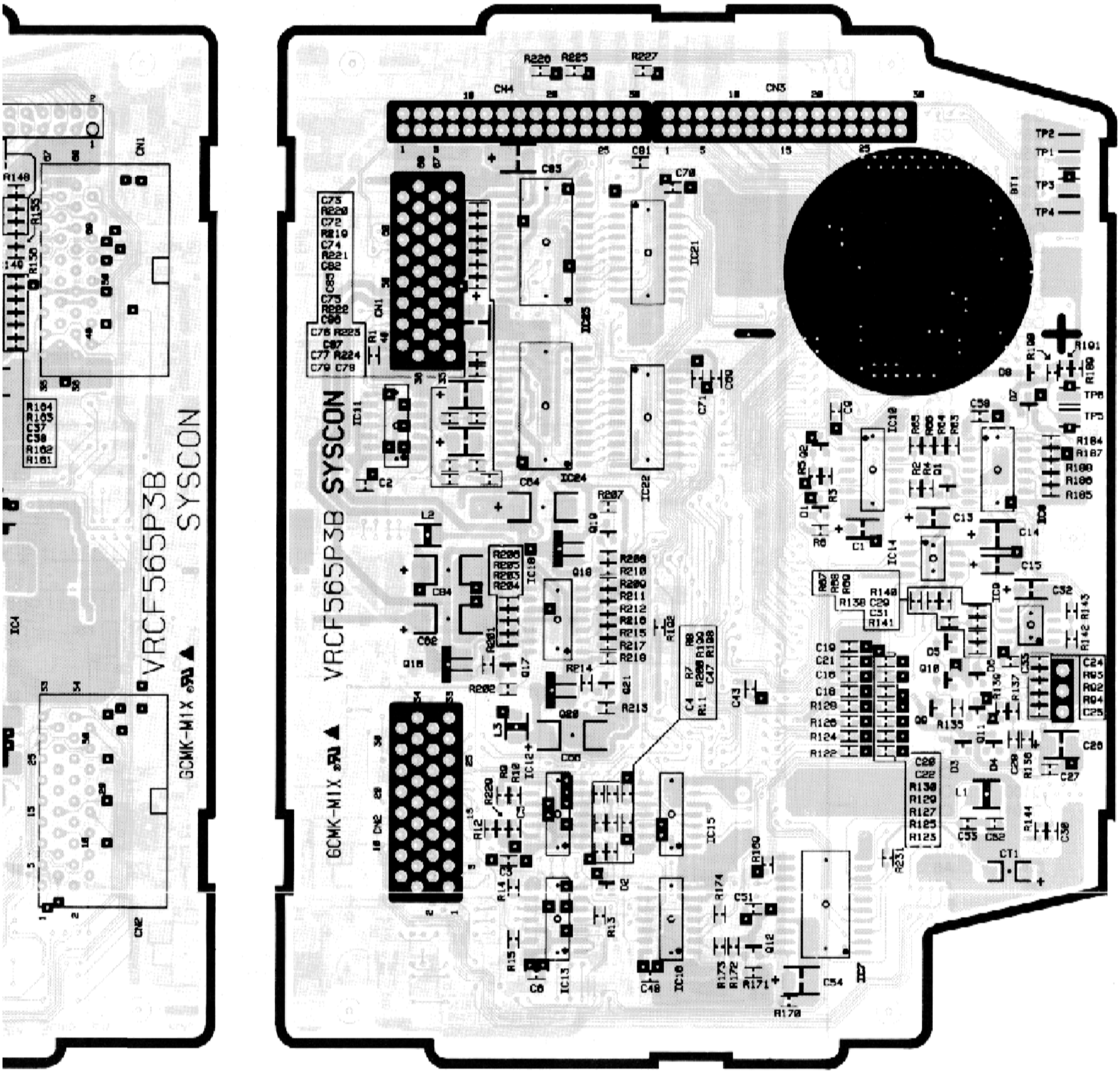

D
C
B
A
1
2
3
CN3
CN4
CN1
CN2
IC1
IC2
IC3
IC4
IC5
IC6
IC17
IC19
IC20
SW1
X1
C63
C65
C67
VRCF565P3B
SYSCON
GCMK-M1X

COMPONENT SIDE
INTERMEDIATE PATTERN

(COMPONENT SIDE VIEW)

OF SYSTEM CONTROL BOARD

SYSTEM CONTROL BOARD


VRCF565P3B SYSCON
6CMK-MIX
CN1
CN2
CN3
CN4
BT1
TP1
TP2
TP3
TP4
TP5
TP6
IC11
IC12
IC13
IC14
IC15
IC16
IC18
IC19
IC21
IC22
IC24
IC25
CT1
L1
L2
L3

(COMPONENT SIDE VIEW)

PATTERN SIDE
INTERMEDIATE PATTERN

(PATTERN SIDE VIEW)

3 4 5 6

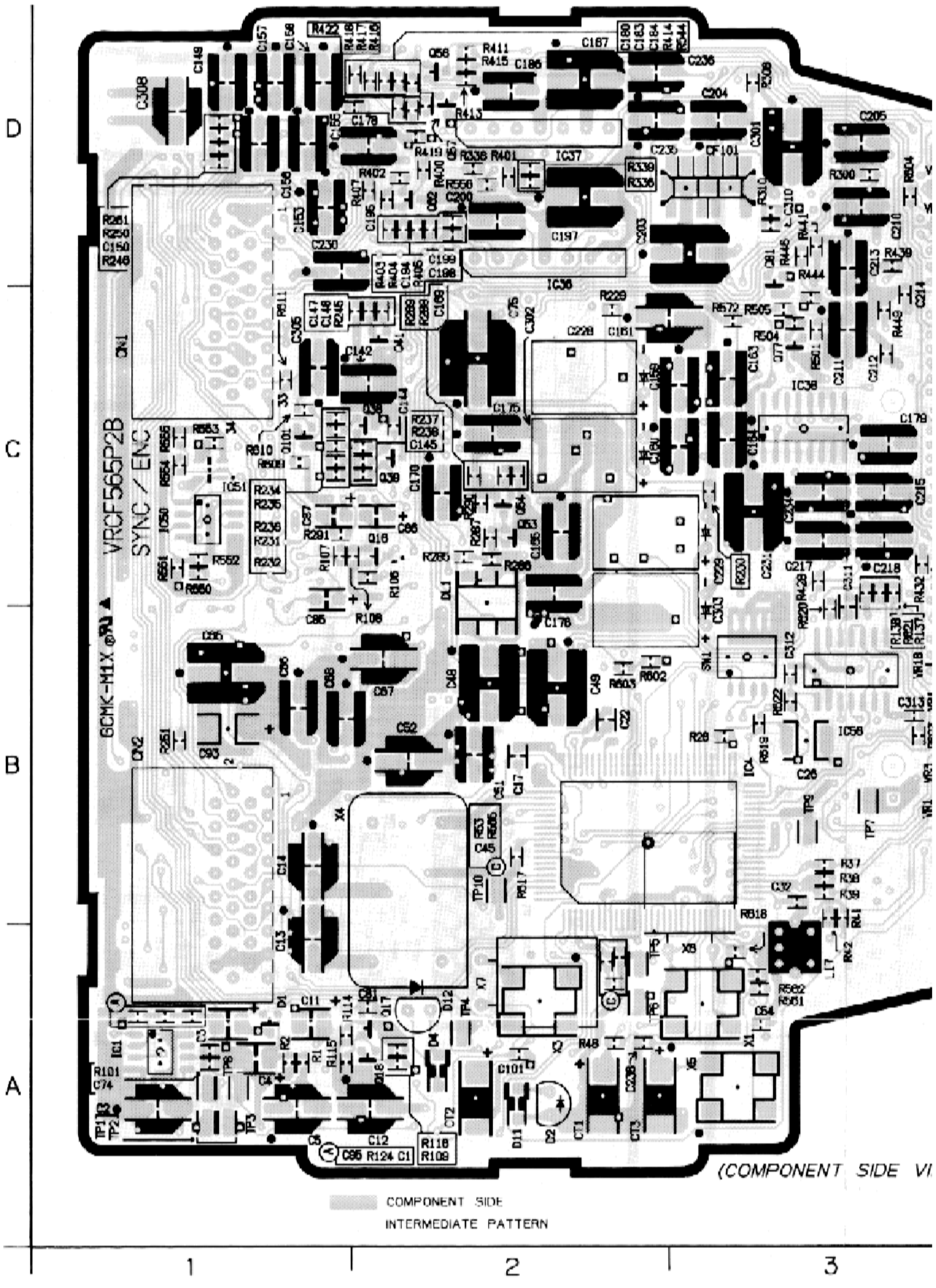
CONDUCTOR VIEW OF SYNC

<Index>

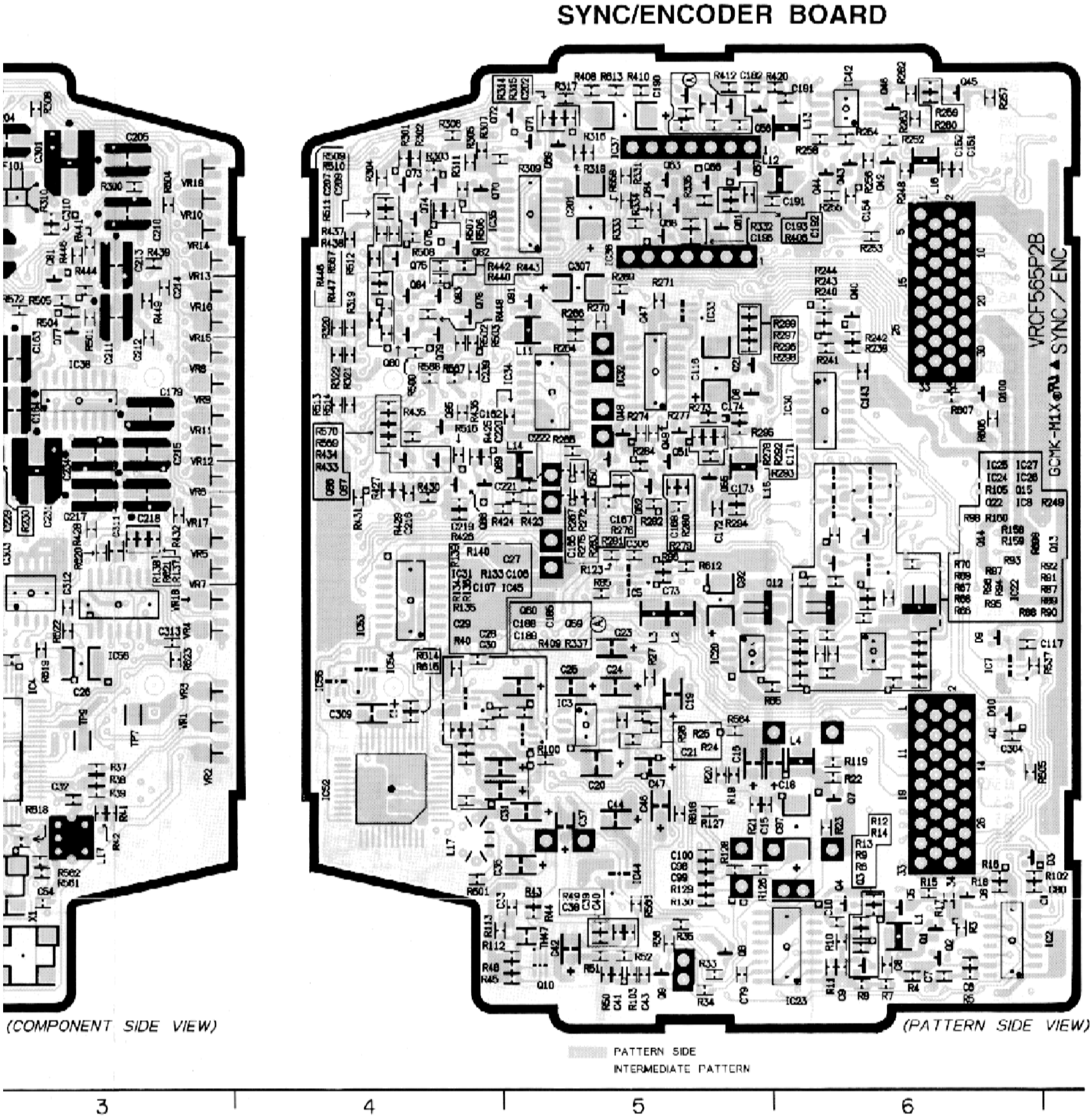
SYNC/ENC BOARD

IC1	A1	Q45	D6
IC2	A6	Q46	D6
IC3	B5	Q47	C5
IC4	B2/B3	Q48	C5
IC5	B5	Q49	C5
IC7	B6	Q50	C5
IC8	B6	Q51	C5
IC20	B5	Q52	C5
IC22	B6	Q53	C2
IC23	A5/A6	Q54	C2
IC24	C6	Q55	C5
IC25	C6	Q56	D5/D6
IC26	C6	Q57	D2
IC27	C6	Q58	D2
IC30	C6	Q59	D5
IC32	C5	Q60	D5
IC33	C5	Q61	D5
IC34	C5	Q62	D2
IC35	D5	Q63	D5
IC36	D5	Q64	D5
IC37	D5	Q66	D5
IC38	C3	Q67	D5
IC42	D6	Q68	D5
IC44	A5	Q69	D5
IC50	C1	Q70	D4
IC51	C1	Q71	D5
IC52	A4/B4	Q72	D5
IC53	B4	Q73	D4
IC54	B4	Q74	D4
IC55	B4	Q75	D4
IC56	B3	Q76	D4
		Q77	C3
Q1	A6	Q78	C4
Q2	A6	Q79	C4
Q3	A6	Q80	C4
Q4	A6	Q81	C3/D3
Q5	A6	Q82	D4
Q6	A6	Q83	C4
Q7	B6	Q84	C4
Q8	A5	Q85	C4
Q9	A5	Q86	C4
Q10	A5	Q87	C4
Q12	B5/B6	Q88	C4
Q13	B6	Q89	C4
Q14	B6	Q91	C5
Q15	C6	Q100	C6
Q16	C2	Q101	C1
Q17	A2		
Q18	A2	D1	A1
Q22	B6	D3	A6
Q38	C2	D4	A2
Q39	C2	D9	B6
Q40	C6	D11	A2
Q41	C2		
Q42	D6		
Q43	D6		
Q44	D6		

SYNC/ENCODER BOARD

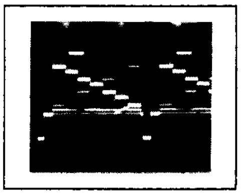

D
C
B
A
1
2
3
VRCF565P2B
SYNC / ENC
6CMK-M1X
CN1
CN2
IC36
IC37
IC38
IC56
(COMPONENT SIDE VI
COMPONENT SIDE
INTERMEDIATE PATTERN

/ OF SYNC/ENCODER BOARD

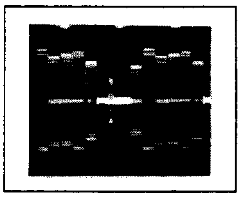

SYNC/ENCODER BOARD
VRCF565P2B
SYNC / ENC
GCMK-M1X
(COMPONENT SIDE VIEW)
(PATTERN SIDE VIEW)
PATTERN SIDE
INTERMEDIATE PATTERN
3
4
5
6

SYNC ENCODER BOARD

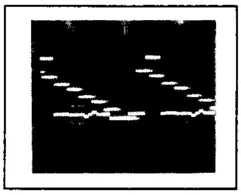
1. 20µsec/DIV, 0.2V/DIV



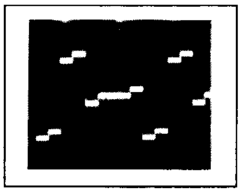
2. 10µsec/DIV, 0.1V/DIV



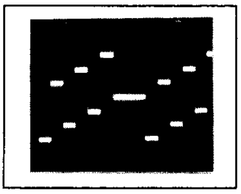
3. 10µsec/DIV, 0.2V/DIV



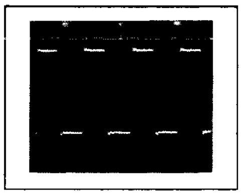
4. 10µsec/DIV,0.1V/DIV



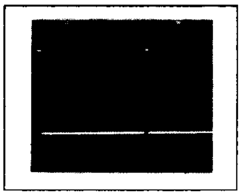
5. 10µsec/DIV, 0.1V/DIV



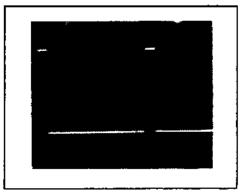
6. 0.1µsec/DIV, 1V/DIV



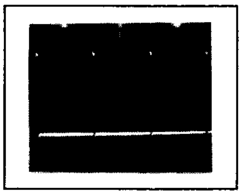
7. 10µsec/DIV, 1V/DIV



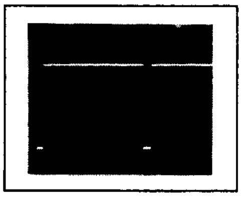
8. 10µsec/DIV, 1V/DIV



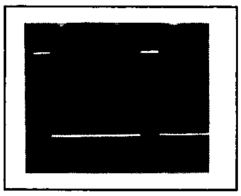
9. 5msec/DIV, 1V/DIV



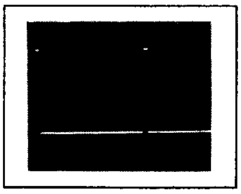
10. 10µsec/DIV, 1V/DIV



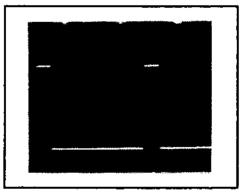
11. 10µsec/DIV, 1V/DIV



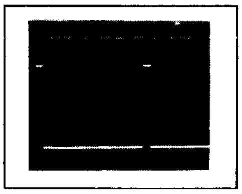
12. 10µsec/DIV 1V/DIV



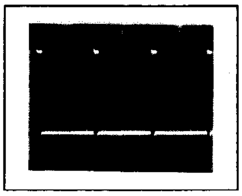
13. 10µsec/DIV, 1V/DIV



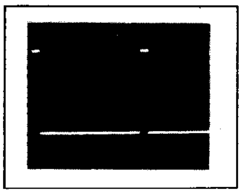
14. 10µsec/DIV, 1V/DIV



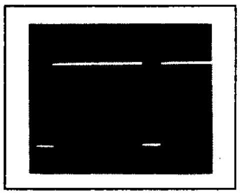
15. 5msec/DIV, 1V/DIV



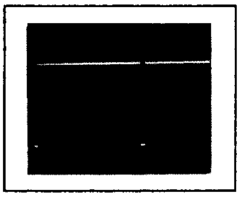
16. 10µsec/DIV, 1V/DIV



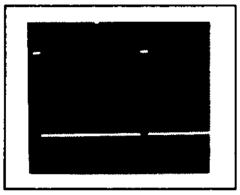
17. 10µsec/DIV, 1V/DIV



18. 10µsec/DIV, 1V/DIV



19. 10µsec/DIV, 1V/DIV



SYNC / ENCODER BOARD

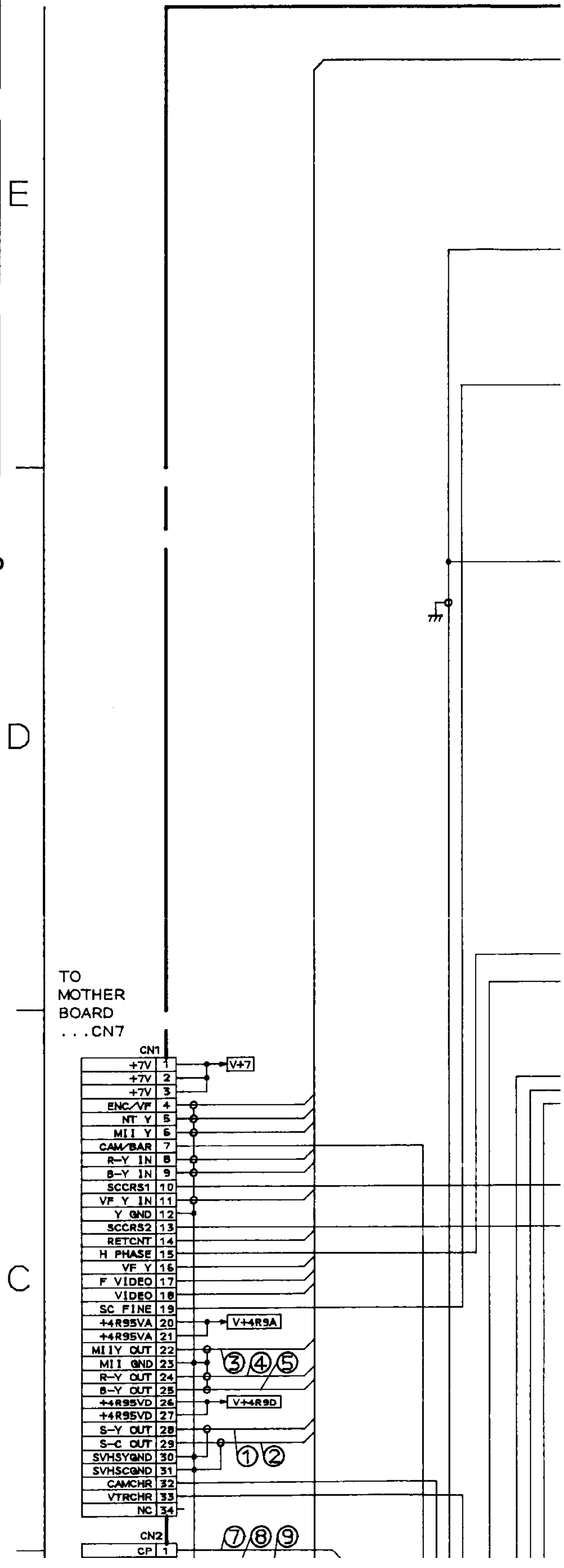
	IC2	IC3	IC5	IC7	IC8	IC20	IC22	IC23	IC24	IC25	IC26
Pin 1	4.7	4.1	0.2	1.1	2.9	5.8	6.1	0	3.2	3.2	3.2
2	0	0	0.2	3.9	0.6	0	2.9	0	3.2	3.2	3.2
3	4.7	4.1	0	0	0	5.8	2.9	4.7	0	0	0

<Index>

SYNC/ENCODER BOARD

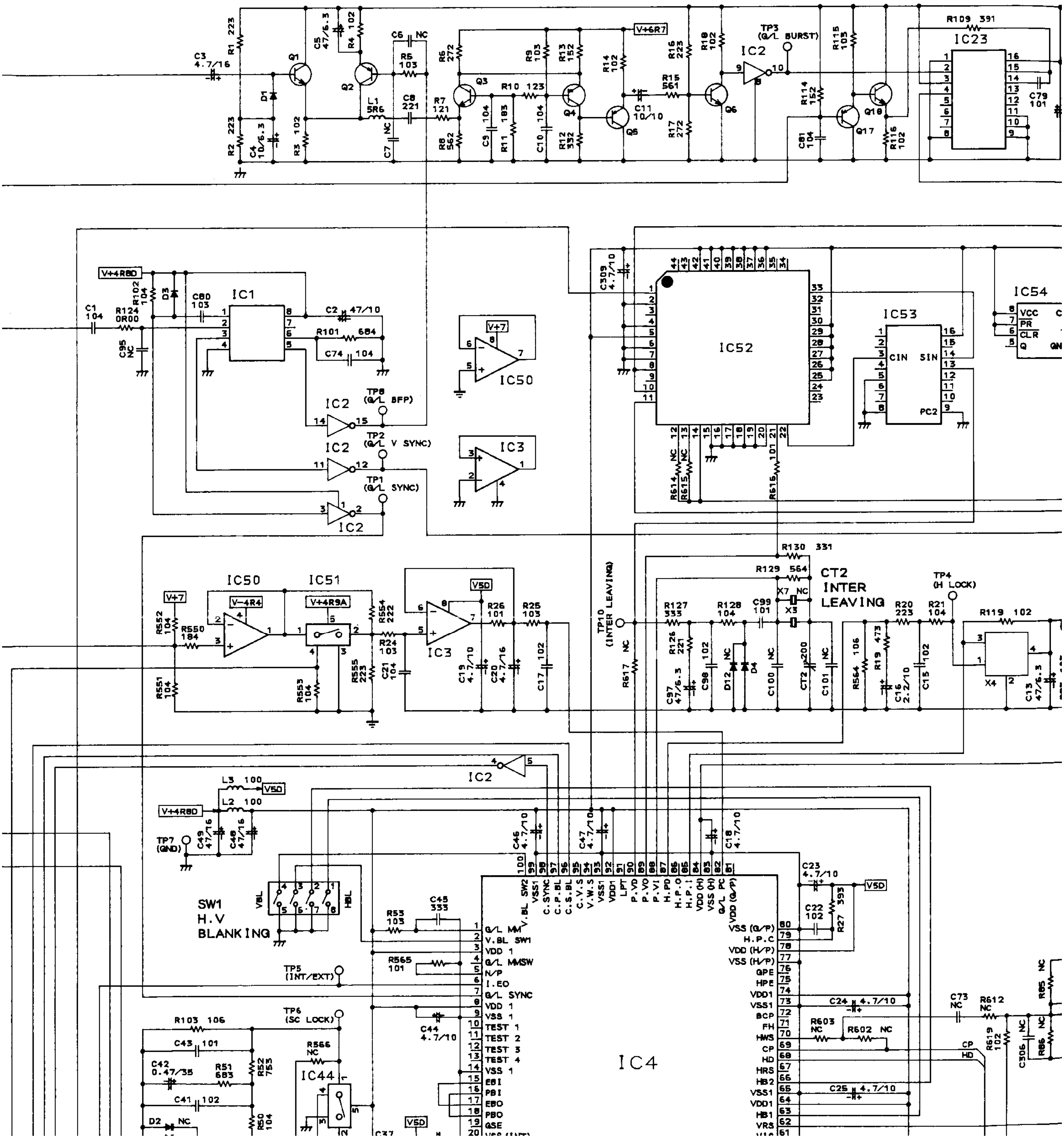
IC1	D2
IC2	A4,C2/D2,E3
IC3	D2
IC4	C3
IC5	C4
IC7	A4
IC8	A2
IC20	A7
IC22	A5/A6
IC23	E4
IC24	A3
IC25	A3
IC26	A3
IC27	A3
IC30	E5/E6
IC32	C6/D6
IC33	D6
IC34	D7
IC35	C5/D5
IC36	C7
IC37	C6
IC38	B7
IC42	E7
IC44	C2
IC45	B2
IC50	D2
IC51	D2
IC52	D3
IC53	D3
IC54	D4
IC55	D4
IC56	B3
Q1	E2
Q2	E2
Q3	E2
Q4	E3
Q5	E3
Q6	E3
Q7	D4
Q8	B3
Q9	A3
Q10	B2
Q12	A8
Q13	A5
Q16	A3
Q17	E3
Q18	E3
Q22	A2

SYNC/ENCODER BOARD

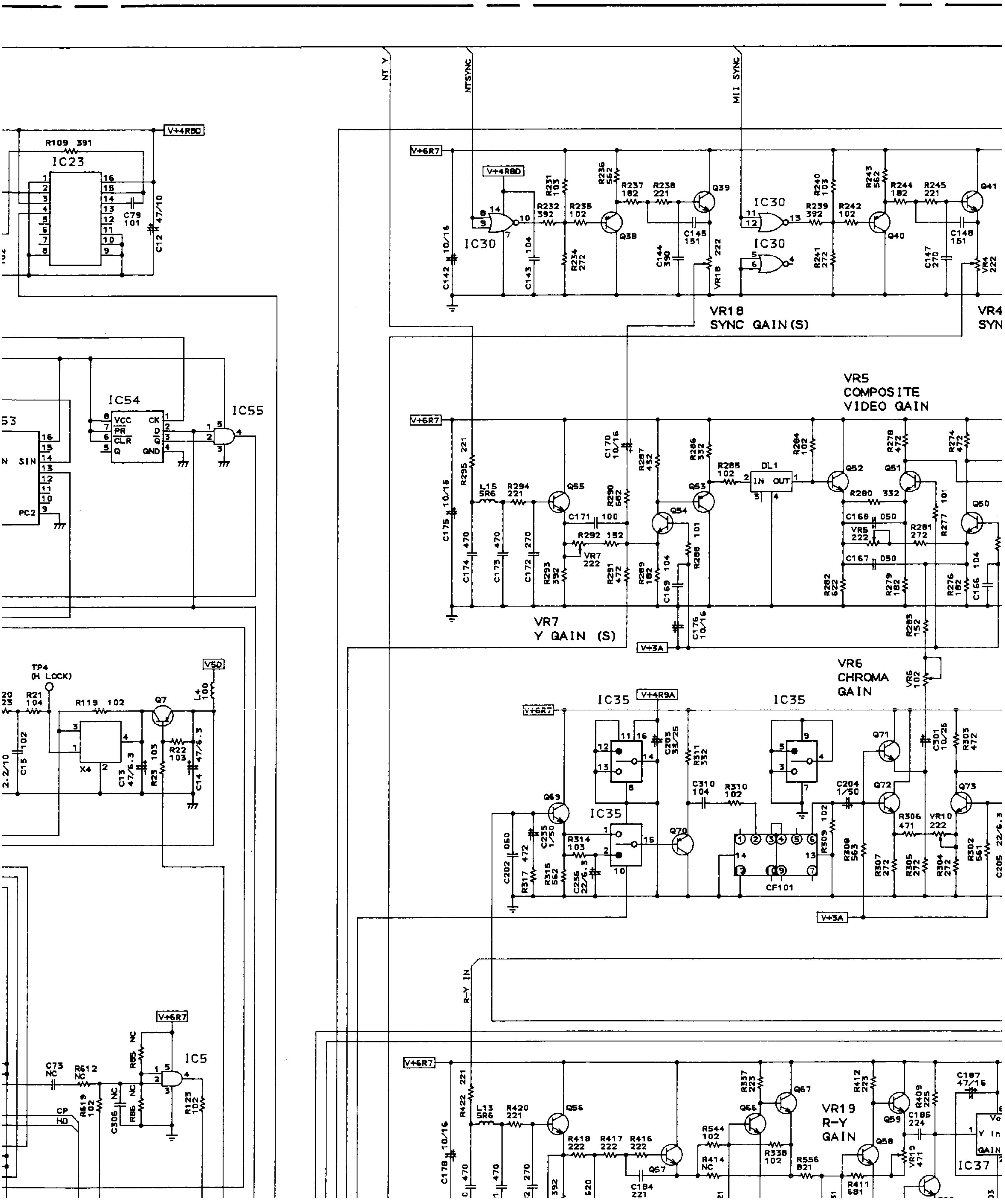

E
D
C
TO
MOTHER
BOARD
. . . CN7
CN1
+7V 1
+7V 2
+7V 3
ENC/VF 4
NT Y 5
MII Y 6
CAM/BAR 7
R-Y IN 8
B-Y IN 9
SCCRS1 10
VF Y IN 11
Y GND 12
SCCRS2 13
RETCNT 14
H PHASE 15
VF Y 16
F VIDEO 17
VIDEO 18
SC FINE 19
+4R95VA 20
+4R95VA 21
MIIY OUT 22
MII GND 23
R-Y OUT 24
B-Y OUT 25
+4R95VD 26
+4R95VD 27
S-Y OUT 28
S-C OUT 29
SVHSYGND 30
SVHSCGND 31
CAMCHR 32
VTRCHR 33
NC 34
CN2
CP 1
V+7
V+4R9A
V+4R9D
③④⑤
①②
⑦⑧⑨

SCHEMATIC DIAGRAM OF SYNC

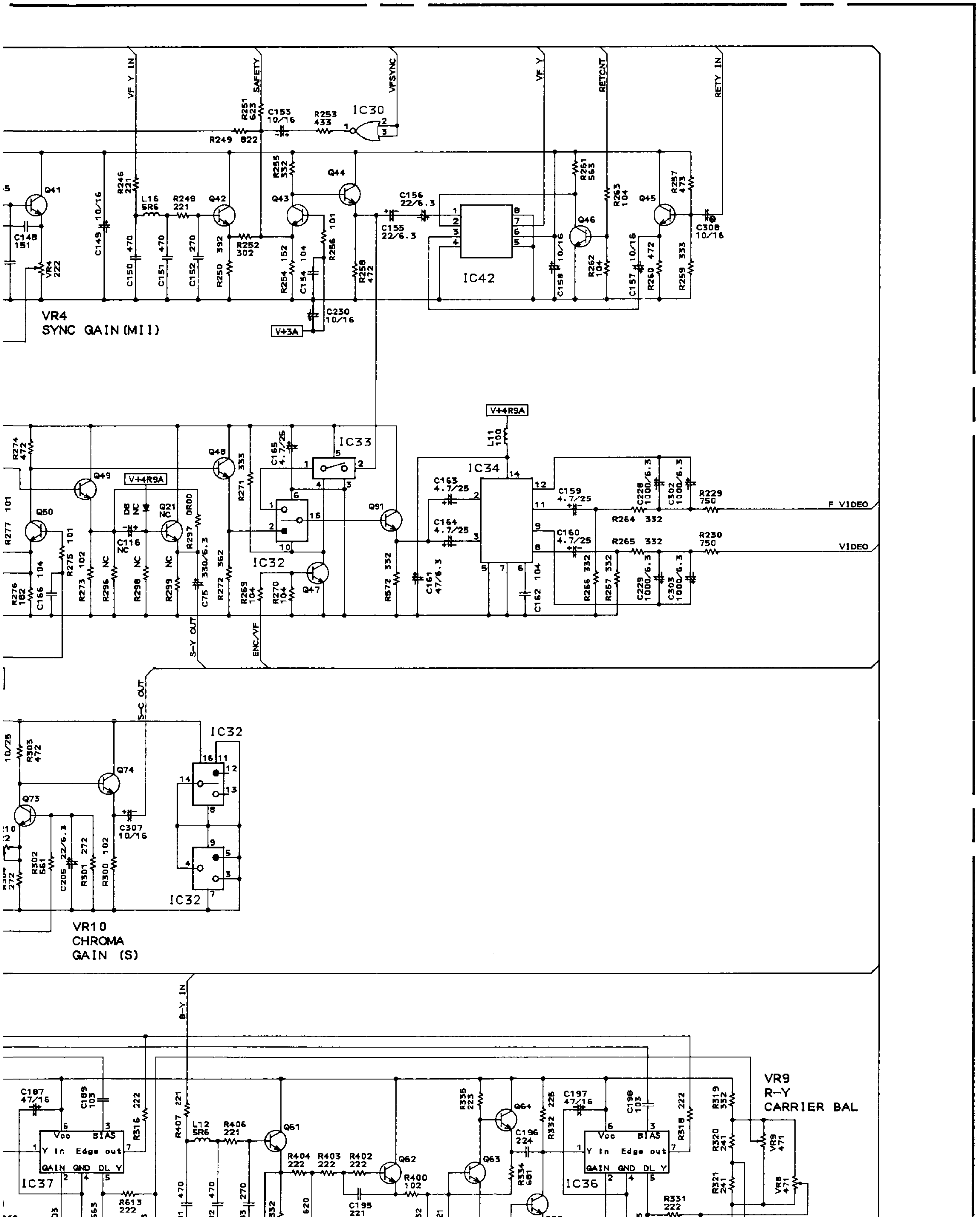
ARD

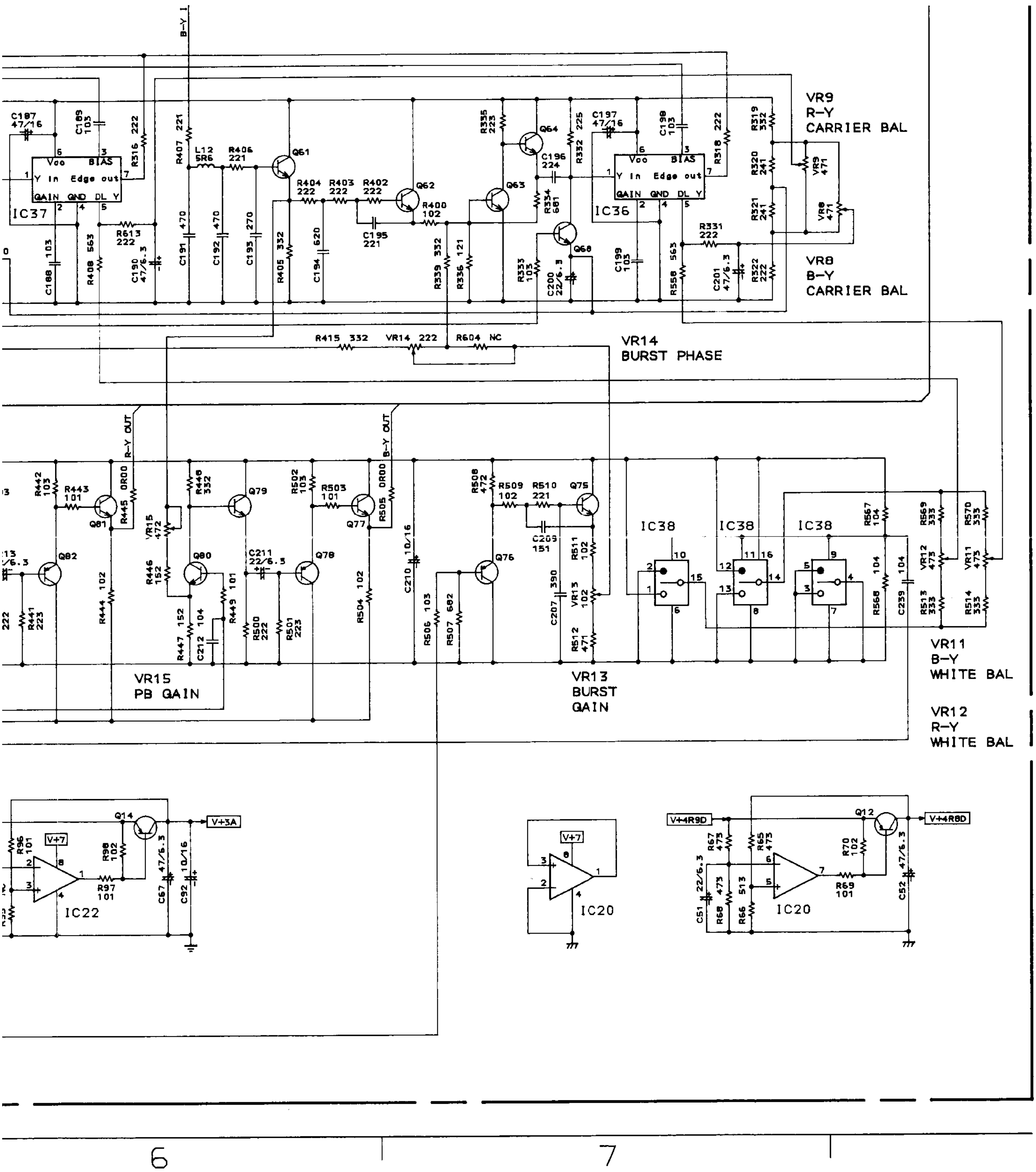

C3 4.7/16
R1 223
R2 223
D1
C4 10/6.3
Q1
C5 47/6.3
R3 102
R4 102
Q2
L1 5R6
C7 NC
C6 NC
R5 103
C8 221
R7 121
R6 272
R8 562
Q3
C9 104
R10 123
R11 183
R9 103
C10 104
R13 152
R12 332
Q4
V+6R7
R14 102
C11 10/10
Q5
R15 561
R16 223
R17 272
R18 102
Q6
IC2
TP3 (G/L BURST)
R115 105
R114 152
C81 104
Q17
Q18
R116 102
R109 391
IC23
C79 101
V+4R8D
R102 104
D3
C80 103
C1 104
R124 0R00
C95 NC
IC1
C2 47/10
R101 684
C74 104
V+7
IC50
IC3
TP8 (G/L BFP)
TP2 (G/L V SYNC)
TP1 (G/L SYNC)
C309 4.7/10
IC52
R614 NC
R615 NC
R616 101
IC53
CIN
SIN
PC2
IC54
VCC
PR
CLR
Q
V-4R4
V+4R9A
IC51
R552 104
R550 184
R551 104
R553 104
R554 222
R24 103
R555 223
C21 104
V5D
R26 101
R25 103
C19 4.7/10
C20 4.7/16
C17 102
TP10 (INTER LEAVING)
R617 NC
R130 331
R129 564
CT2 INTER LEAVING
X7 NC
X3
R127 333
R126 221
C97 47/6.3
C98 102
R128 104
C99 101
D12 NC
D4
C100 NC
CT2 200
C101 NC
TP4 (H LOCK)
R564 106
R19 473
R20 223
R21 104
C16 2.2/10
C15 102
R119 102
X4
C13 47/6.3
L3 100
L2 100
V5D
V+4R8D
TP7 (GND)
C49 47/16
C48 47/16
C46 4.7/10
C47 4.7/10
C18 4.7/10
SW1 H.V BLANKING
VBL
HBL
R53 103
C45 333
R565 101
TP5 (INT/EXT)
TP6 (SC LOCK)
R566 NC
IC44
R103 106
C43 101
C42 0.47/35
R51 683
R52 753
C41 102
R50 104
D2 NC
C37
C44 4.7/10
C23 4.7/10
C22 102
R27 393
C24 4.7/10
C25 4.7/10
R603 NC
R602 NC
C73 NC
R612 NC
R619 102
C306 NC
R85 NC
R86 NC
CP
HD
IC4
G/L MM
V.BL SW1
VDD 1
G/L MMSW
N/P
I.EO
G/L SYNC
VDD 1
VSS 1
TEST 1
TEST 2
TEST 3
TEST 4
VSS 1
EBI
PBI
EBO
PBO
GSE
V.BL SW2
VSS1
C.SYNC
C.P.BL
C.S.BL
C.V.S
V.W.S
VSS1
VDD1
LPT
P.VO
P.VI
H.PD
H.P.O
H.P.I
VDD (H)
VSS (H)
G/L PC
VDD (G/P)
VSS (G/P)
H.P.C
VDD (H/P)
VSS (H/P)
GPE
HPE
VDD1
VSS1
BCP
FH
HWS
CP
HD
HRS
HB2
VSS1
VDD1
HB1
VRS

OF SYNC/ENCODER BOARD



NT Y
NTSYNC
MII SYNC
R-Y IN
V+4R8D
V+6R7
V+3A
V+4R9A
V5D
IC23
IC30
IC35
IC37
IC5
IC54
IC55
CF101
DL1
X4
TP4
(H LOCK)
Q7
Q38
Q39
Q40
Q41
Q50
Q51
Q52
Q53
Q54
Q55
Q56
Q57
Q58
Q59
Q66
Q67
Q69
Q70
Q71
Q72
Q73
VR18
SYNC GAIN (S)
VR4
VR5
COMPOSITE
VIDEO GAIN
VR7
Y GAIN (S)
VR6
CHROMA
GAIN
VR10
VR19
R-Y
GAIN
R109 391
C79 101
C12 47/10
C142 10/16
C143 104
R231 103
R232 392
R234 272
R235 102
R236 562
R237 182
R238 221
C144 390
C145 151
R239 392
R240 103
R241 272
R242 102
R243 562
R244 182
R245 221
C147 270
C148 151
VR4 222
VR18 222
VCC
PR
CLR
CK
D
Q
GND
SIN
PC2
R21 104
R119 102
C15 102
C13 47/6.3
R23 103
R22 103
C14 47/6.3
L4 100
R295 221
C175 10/16
L15 5R6
R294 221
C174 470
C173 470
C172 270
R293 392
C171 100
R292 152
VR7 222
R291 472
R290 682
C170 10/16
R287 452
R289 182
C169 104
R288 101
C176 10/16
R286 332
R285 102
IN
OUT
R284 102
R278 472
R280 332
C168 050
VR5 222
R281 272
C167 050
R282 622
R279 182
R277 101
R274 472
R276 182
C166 104
R283 152
VR6 102
C205 33/25
R311 332
C310 104
R310 102
C235 1/50
C202 050
R317 472
R315 562
R314 103
C236 22/6.3
C204 1/50
C301 10/25
R303 472
R309 102
R308 563
R307 272
R306 471
R305 272
R304 272
R302 561
C205 22/6.3
C73 NC
R612 NC
R619 102
C306 NC
R86 NC
R85 NC
R123 102
CP
HD
R422 221
C178 10/16
L13 5R6
R420 221
R418 222
R417 222
R416 222
C184 221
R337 223
R544 102
R414 NC
R338 102
R556 821
R412 223
R411 681
R409 225
C185 224
VR19 471
C187 47/16
Y In
GAIN
Vo


VF Y IN
SAFETY
VFSYNC
VF Y
RETCNT
RETY IN
IC30
R251 623
C153 10/16
R253 433
R249 822
Q41
C148 151
VR4 222
C149 10/16
R246 221
L16 5R6
R248 221
Q42
C150 470
C151 470
C152 270
R250 392
R252 302
R255 332
Q43
Q44
R254 152
C154 104
R256 101
R258 472
C230 10/16
V+3A
C156 22/6.3
C155 22/6.3
IC42
R261 563
R263 104
Q46
C158 10/16
R262 104
Q45
R257 473
C308 10/16
C157 10/16
R260 472
R259 333
VR4
SYNC GAIN (MII)
R274 472
Q49
V+4R9A
Q48
R271 333
C165 4.7/25
IC33
Q50
R277 101
D8 NC
C116 NC
Q21 NC
R297 0R00
R275 101
R276 182
C166 104
R273 102
R296 NC
R298 NC
R299 NC
C75 330/6.3
R272 362
IC32
R269 104
R270 104
Q47
Q91
R572 332
C161 47/6.3
V+4R9A
L11 100
IC34
C163 4.7/25
C164 4.7/25
C162 104
C159 4.7/25
C160 4.7/25
C228 1000/6.3
C302 1000/6.3
R229 750
R264 332
F VIDEO
R265 332
R230 750
VIDEO
R266 332
R267 332
C229 1000/6.3
C303 1000/6.3
S-Y OUT
ENC/VF
S-C OUT
IC32
R303 472
Q74
Q73
C307 10/16
R302 561
C205 22/6.3
R301 272
R300 102
R304 272
IC32
VR10
CHROMA
GAIN (S)
B-Y IN
C187 47/16
C189 103
R316 222
IC37
Vcc BIAS
Y In Edge out
GAIN GND DL Y
R613 222
R407 221
L12 5R6
R406 221
Q61
R404 222
R403 222
R402 222
Q62
R400 102
C195 221
R335 223
Q64
C196 224
Q63
R334 681
R332 225
C197 47/16
C198 103
IC36
R318 222
R331 222
R319 332
R320 241
R321 241
VR9 471
VR8 471
VR9
R-Y
CARRIER BAL


B-Y I
C187 47/16
C189 105
R316 222
Vcc
BIAS
Y In
Edge out
GAIN
GND
DL Y
IC37
C188 103
R408 563
R613 222
C190 47/6.3
R407 221
L12 5R6
R406 221
C191 470
C192 470
C193 270
Q61
R404 222
R403 222
R402 222
R405 332
C194 620
C195 221
Q62
R400 102
R335 223
Q64
R332 225
C196 224
Q63
R334 681
R339 332
R336 121
R333 103
C200 22/6.3
Q68
C197 47/16
C198 103
R318 222
IC36
C199 105
R558 563
R331 222
C201 47/6.3
R319 332
R320 241
R321 241
R322 222
VR9 471
VR8 471
VR9
R-Y
CARRIER BAL
VR8
B-Y
CARRIER BAL
R415 332
VR14 222
R604 NC
VR14
BURST PHASE
R-Y OUT
B-Y OUT
R442 103
R443 101
Q81
R445 0R00
Q82
R441 223
R444 102
VR15 472
R448 332
Q79
R446 152
Q80
R447 152
C212 104
R449 101
C211 22/6.3
R500 222
R501 223
Q78
R502 103
R503 101
Q77
R505 0R00
R504 102
VR15
PB GAIN
C210 10/16
R508 472
R509 102
R510 221
Q75
C209 151
Q76
R506 103
R507 682
R511 102
C207 390
VR13 102
R512 471
VR13
BURST
GAIN
IC38
R567 104
R568 104
C239 104
R569 333
R570 333
VR12 473
VR11 473
R513 333
R514 333
VR11
B-Y
WHITE BAL
VR12
R-Y
WHITE BAL
R96 101
V+7
IC22
Q14
R98 102
R97 101
C67 47/6.3
C92 10/16
V+3A
IC20
V+4R9D
R67 473
R65 473
C51 22/6.3
R68 473
R66 513
R70 102
Q12
R69 101
C52 47/6.3
V+4R8D
6
7

Note: **The value indicated in the schematic diagram should be read as follows:**

☐ ☐ ☐

Multiplier (0 - 5)

2nd. Significant Digit (0 - 9)

1st. Siginificant Digit (1 - 9)

<Example>

For Resistor:

330 → 33×10^0 = 33 Ω

561 → 56×10^1 = 560 Ω

123 → 12×10^3 = 12k Ω

0R00 = 0 Ω

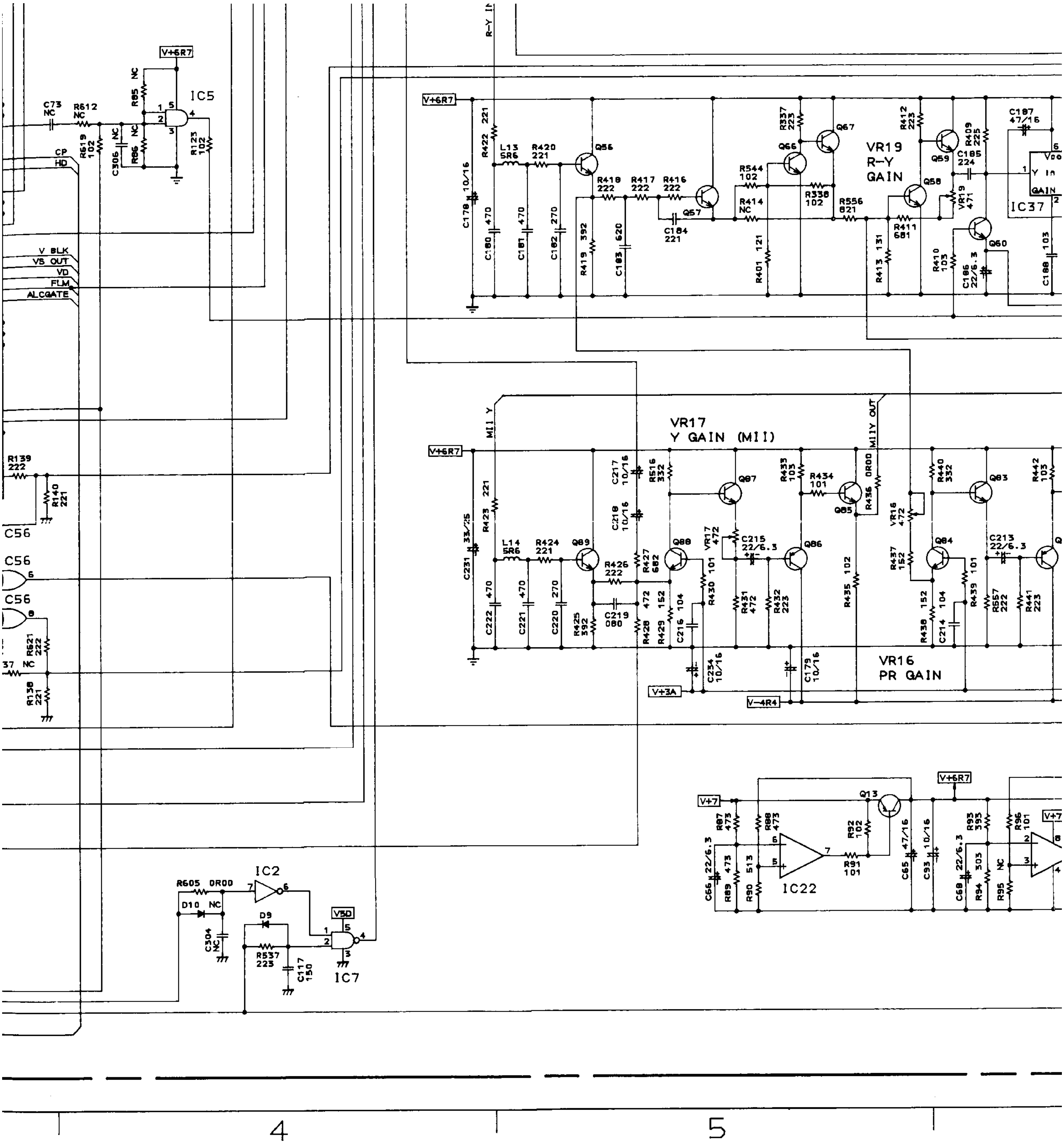
For Capacitor:

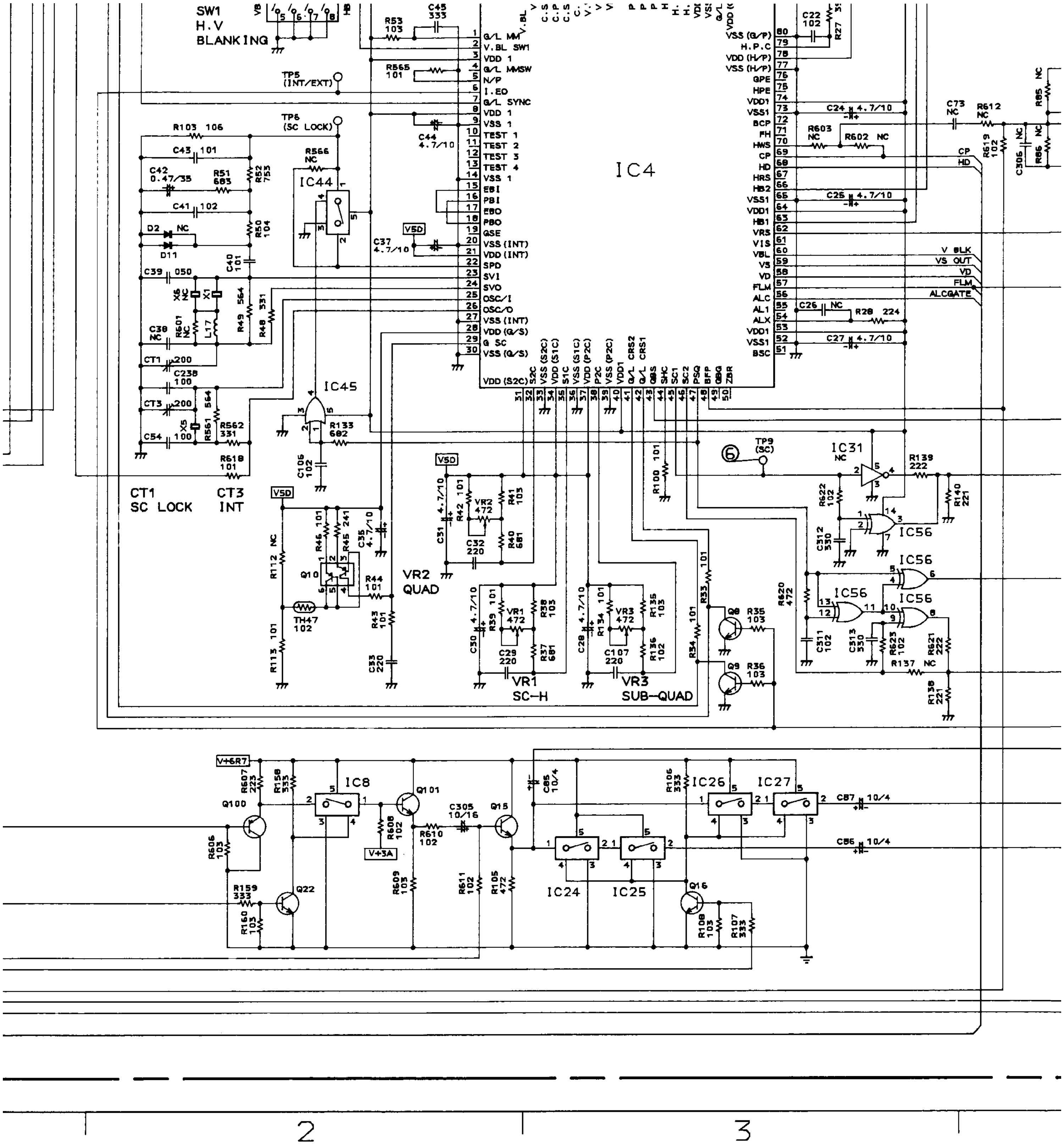
820 → 82×10^0 = 82 pF

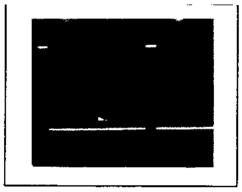
102 → 10×10^2 = 1000 pF = 0.001 μF

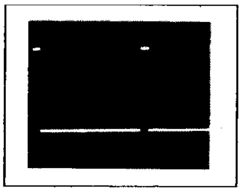
104 → 10×10^4 = 100000 pF = 0.1 μF

The suffix attached to capacitance indicates a type of capacitor.


V+6R7
IC5
C73 NC
R612 NC
R85 NC
R86 NC
C306 NC
R619 102
R123 102
CP
HD
V BLK
VS OUT
VD
FLM
ALCGATE
R-Y IN
R422 221
L13 5R6
R420 221
C178 10/16
C180 470
C181 470
C182 270
Q56
R418 222
R417 222
R416 222
R419 392
C183 620
Q57
C184 221
R337 223
Q66
Q67
R544 102
R414 NC
R336 102
R401 121
VR19
R-Y
GAIN
R412 223
Q59
R409 225
C185 224
Q58
R556 821
R411 681
R413 131
VR19 471
R410 103
C186 22/6.3
Q60
C187 47/16
Vcc
Y In
GAIN
IC37
C188 103
MII Y
MIIY OUT
VR17
Y GAIN (MII)
R423 221
C231 33/25
L14 5R6
R424 221
Q89
C222 470
C221 470
C220 270
R425 392
R426 222
C219 080
C217 10/16
C218 10/16
R516 332
R427 682
R428 472
R429 152
Q87
Q88
VR17 472
R430 101
C216 104
C215 22/6.3
R431 472
R432 223
R433 103
R434 101
Q85
Q86
R436 0R00
R435 102
C234 10/16
C179 10/16
V+3A
V-4R4
VR16 472
R440 332
Q83
R437 152
Q84
R438 152
C214 104
R439 101
C213 22/6.3
R557 222
R441 223
R442 103
VR16
PR GAIN
R139 222
R140 221
C56
C56 6
C56 8
R621 222
R137 NC
R138 221
V+7
R87 473
R88 473
C66 22/6.3
R89 473
R90 513
IC22
R92 102
R91 101
Q13
C65 47/16
C93 10/16
V+6R7
C68 22/6.3
R93 393
R94 303
R95 NC
R96 101
V+7
IC2
R605 0R00
D10 NC
C304 NC
D9
R537 223
C117 150
V5D
IC7
4
5


SW1
H.V
BLANKING
TP5 (INT/EXT)
TP6 (SC LOCK)
IC44
IC45
IC4
CT1
SC LOCK
CT3
INT
VR2
QUAD
VR1
SC-H
VR3
SUB-QUAD
TP9 (SC)
⑥
IC31
IC56
Q8
Q9
Q10
TH47 102
V5D
V+6R7
V+3A
IC8
Q100
Q22
Q101
Q15
Q16
IC24
IC25
IC26
IC27
C87 10/4
C86 10/4
V BLK
VS OUT
VD
FLM
ALCGATE
CP
HD
G/L MM
V.BL SW1
VDD 1
G/L MMSW
N/P
I.EO
G/L SYNC
VSS 1
TEST 1
TEST 2
TEST 3
TEST 4
EBI
PBI
EBO
PBO
GSE
VSS (INT)
VDD (INT)
SPD
SVI
SVO
OSC/I
OSC/O
VDD (G/S)
G SC
VSS (G/S)
VDD (S2C)
VSS (G/P)
H.P.C
VDD (H/P)
VSS (H/P)
GPE
HPE
VDD1
VSS1
BCP
FH
HWS
HRS
HB2
HB1
VRS
VIS
VBL
VS
FLM
ALC
AL1
ALX
BSC
2
3





SYNC / ENCODER BOARD

	IC2	IC3	IC5	IC7	IC8	IC20	IC22	IC23	IC24	IC25	IC26
Pin 1	4.7	4.1	0.2	1.1	2.9	5.8	6.1	0	3.2	3.2	3.2
2	0	0	0.2	3.9	0.6	0	2.9	0	3.2	3.2	3.2
3	4.7	4.1	0	0	0	5.8	2.9	4.7	0	0	0
4	4.3	0	0.2	3.8	0	0	0	3.5	6.7	6.7	6.7
5	0.4	2.5	6.7	4.7	6.7	2.5	3.5	0.1	6.7	6.7	6.7
6	1.1	2.5				2.5	3.5	4.7			
7	3.8	2.5				4.2	6.2	0.4			
8	0	4.7				7.0	7.0	0			
9	4.7							0			
10	0							0			
11	0							0			
12	4.7							4.0			
13	-							0.1			
14	4.7							4.7			
15	0							0.8			
16	-							4.7			

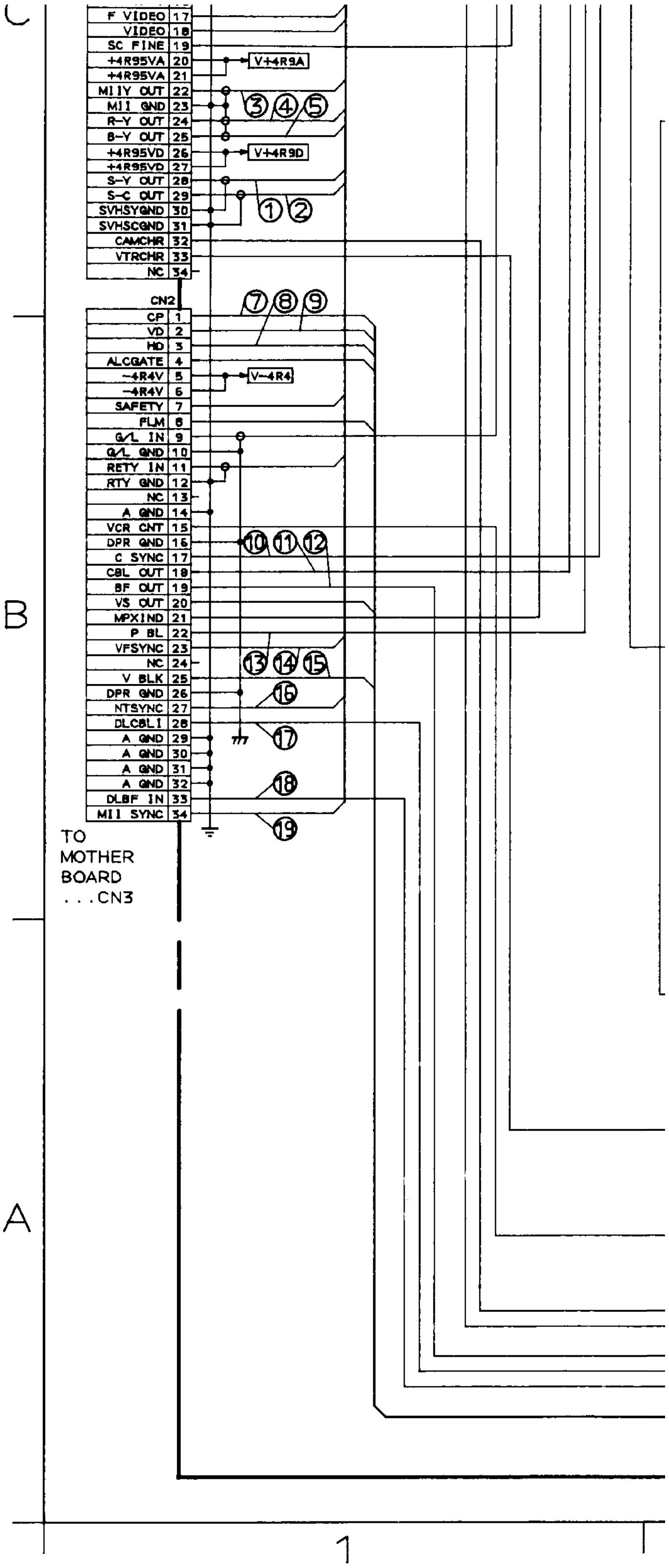
	IC27	IC30	IC31	IC32	IC33	IC35	IC36	IC37	IC42	IC50	IC51
Pin 1	3.2	4.3	-	-	-	3.3	2.7	2.7	3.1	2.7	2.7
2	3.2	0.4	1.8	4.1	2.4	3.2	3.3	3.3	0	2.7	2.5
3	0	0.4	0	0	0	0	3.3	3.3	2.8	2.7	0
4	6.7	4.7	2.4	0	0	0	0	0	0	-4.4	0
5	6.7	0	4.7	1.8	6.7	0	2.7	2.7	0	0	4.9
6		0		2.1		0	6.7	6.7	6.7	0	
7		0		4.9		0	3.9	4.0	2.4	0	
8		0.4		1.6		0			0	7.0	
9		0.4		1.7		0					
10		4.3		1.7		3.8					
11		0.4		0		0					
12		0.4		0		0					
13		4.3		4.1		0					
14		4.7		0		0					
15						3.3					
16						4.9					

	B	C	E
Q1	2.3	4.7	2.3
2	1.7	2.3	2.3
3	3.0	5.7	2.3
4	5.0	2.2	5.7
5	2.2	0	2.9
6	0.5	4.7	0
7	4.7	0	4.7
8	0.7	0	0
9	0.7	0	0
13	6.3	6.7	7.0
14	6.1	2.9	6.7
15	3.8	6.7	3.2
16	0	6.7	0
17	1.0	0	1.7
18	1.7	4.7	0.9
22	0.6	0	0
38	2.5	0	3.1
39	3.1	6.7	2.5
40	2.5	0	3.1
41	3.1	6.7	2.5
42	4.1	6.7	3.4
43	2.9	3.1	2.2
44	3.1	6.7	2.4
45	2.7	6.7	2.2
46	0.6	0	0
47	0.6	0	0
48	4.8	6.7	4.1
49	4.4	6.7	3.7
50	2.9	4.8	2.2
51	2.9	4.5	2.2
52	5.4	6.7	4.7
53	3.5	0	4.3
54	2.9	3.5	2.2
56	4.2	6.7	3.6

	B	C	E
Q57	3.5	6.7	2.9
58	0.6	3.4	0
59	3.4	6.7	2.8
60	0.2	2.7	2.7
61	4.2	6.7	3.6
62	3.6	6.7	2.9
63	0.5	2.6	0
64	2.6	6.7	2.0
65	4.0	6.7	3.3
68	0.2	2.7	2.7
69	3.8	6.7	3.3
70	3.3		3.8
71	2.3	6.7	1.7
72	2.3	6.7	1.7
73	2.4	3.5	1.7
74	3.5	0	2.4
75	2.4	6.7	1.9
76	1.8	0	2.4
77	0.6	6.7	0.1
78	0.1	-4.4	0.7
79	2.9	6.7	2.2
80	2.9	2.9	2.2
81	0.7	6.7	0.1
82	0.1	-4.4	0.7
83	2.9	6.7	2.2
84	2.9	2.9	2.2
85	0.6	6.7	0.1
86	0.1	-4.4	0.7
87	3.5	6.7	2.8
88	2.9	3.5	2.2
89	4.0	6.7	3.3
91	4.1	6.7	3.5
100	0	0	0.6
101	2.9	6.7	2.3

	Q10
Pin 1	4.4
2	4.4
3	3.7
4	1.3
5	3.7
6	3.7

Q3	E2
Q4	E3
Q5	E3
Q6	E3
Q7	D4
Q8	B3
Q9	A3
Q10	B2
Q12	A8
Q13	A5
Q16	A3
Q17	E3
Q18	E3
Q22	A2
Q38	E5
Q39	E5
Q40	E5
Q41	E6
Q42	E6
Q43	E6
Q44	E6
Q45	E7
Q46	E7
Q47	D6
Q48	D6
Q49	D6
Q50	D6
Q51	D6
Q52	D5
Q53	D5
Q54	D5
Q55	D5
Q56	C5
Q57	C5
Q58	C5
Q59	C6
Q60	C6
Q61	C6
Q62	C7
Q63	C7
Q64	C7
Q66	C5
Q67	C5
Q68	B7
Q69	C5
Q70	C5
Q71	D6
Q72	C6
Q73	C6
Q74	D6
Q75	B7
Q76	D6
Q77	D6
Q78	B6
Q79	B6
Q80	B6
Q81	B6
Q82	B6
Q83	B6
Q84	B6
Q85	B5
Q86	B5
Q87	B5
Q88	B5
Q89	B5
Q91	D7
Q100	A2
Q101	A2
D1	E2
D3	D2
D4	D3
D9	A4
D11	B2

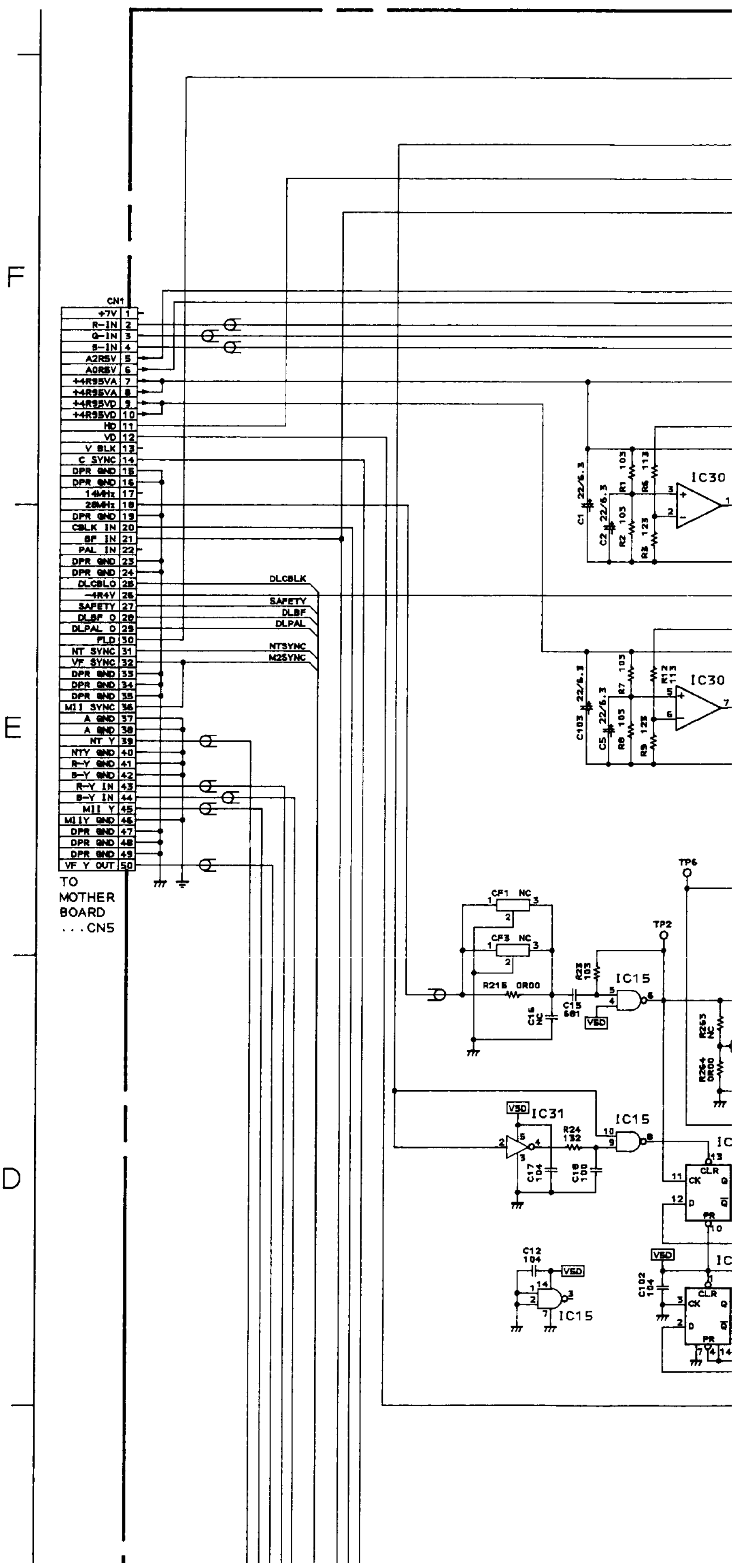

C
F VIDEO 17
VIDEO 18
SC FINE 19
+4R95VA 20
+4R95VA 21
MI IY OUT 22
MII GND 23
R-Y OUT 24
B-Y OUT 25
+4R95VD 26
+4R95VD 27
S-Y OUT 28
S-C OUT 29
SVHSYGND 30
SVHSCGND 31
CAMCHR 32
VTRCHR 33
NC 34
V+4R9A
V+4R9D
③④⑤
①②
CN2
CP 1
VD 2
HD 3
ALCGATE 4
-4R4V 5
-4R4V 6
SAFETY 7
FLM 8
G/L IN 9
G/L GND 10
RETY IN 11
RTY GND 12
NC 13
A GND 14
VCR CNT 15
DPR GND 16
C SYNC 17
CBL OUT 18
BF OUT 19
VS OUT 20
MPXIND 21
P BL 22
VFSYNC 23
NC 24
V BLK 25
DPR GND 26
NTSYNC 27
DLCBLI 28
A GND 29
A GND 30
A GND 31
A GND 32
DLBF IN 33
MII SYNC 34
V-4R4
⑦⑧⑨
⑩⑪⑫
⑬⑭⑮
⑯
⑰
⑱
⑲
B
TO
MOTHER
BOARD
...CN3
A
1

<Index>

DIGITAL PROCESS BOARD

IC1	F4
IC2	E4
IC3	D4
IC4	F5
IC5	E5
IC7	E7
IC8	B7
IC14	D3,C4/F4
IC15	D2
IC17	D2
IC18	E3
IC19	D3,C4
IC21	D3/C3,F6
IC22	F4/F5/F6
IC27	F8
IC30	E2/E3,F2/F3
IC33	B5
IC301	B5
IC302	B6
IC401	B4
Q1	F2
Q2	F2
Q3	E2
Q4	E2
Q5	E3
Q6	E3
Q7	B3
Q8	A3
Q9	A3
Q10	F2
Q11	F3

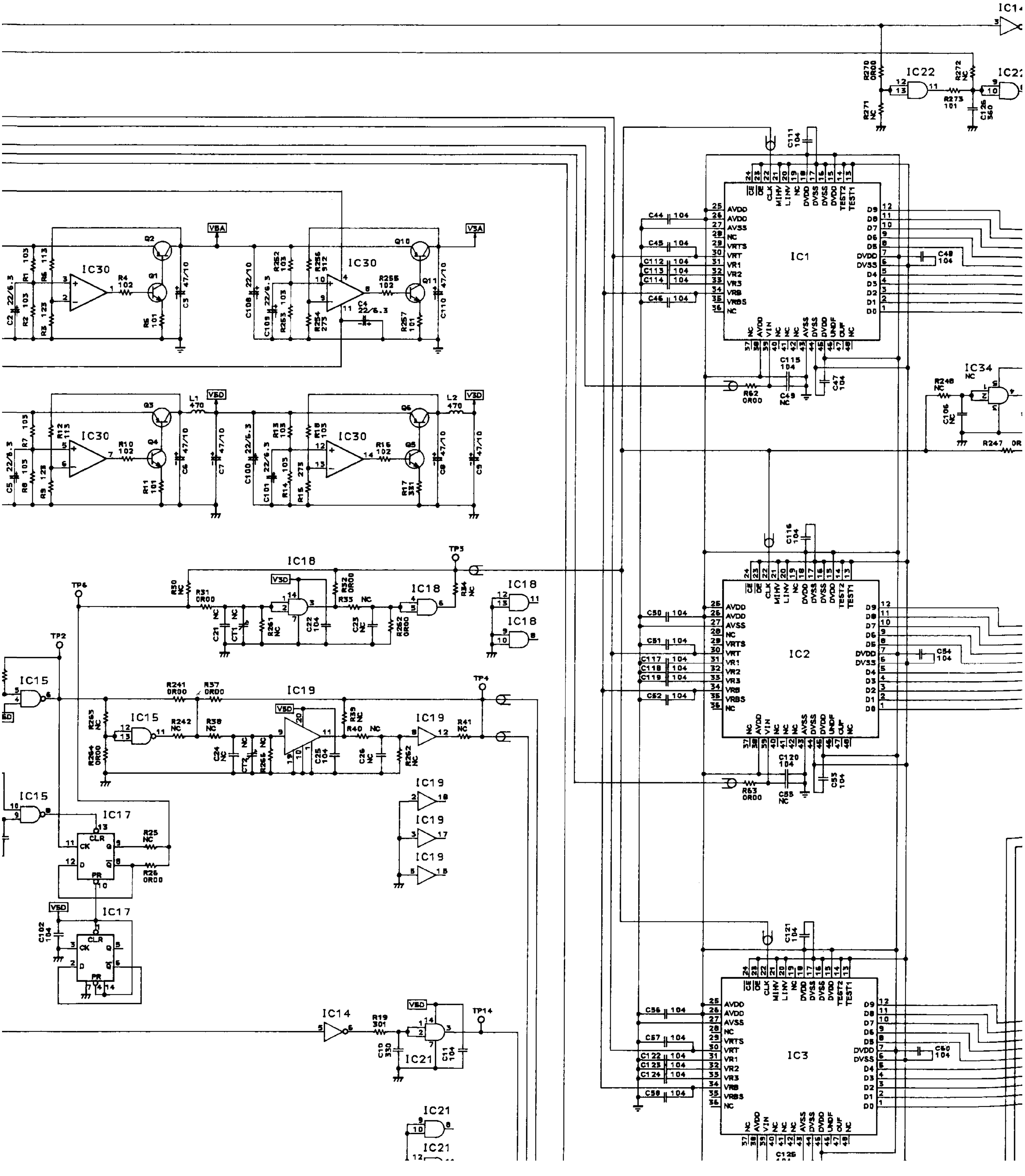
DIGITAL PROCESS BOARD


F
E
D
CN1
+7V 1
R-IN 2
G-IN 3
B-IN 4
A2R5V 5
A0R5V 6
+4R95VA 7
+4R95VA 8
+4R95VD 9
+4R95VD 10
HD 11
VD 12
V BLK 13
C SYNC 14
DPR GND 15
DPR GND 16
14MHz 17
28MHz 18
DPR GND 19
CBLK IN 20
BF IN 21
PAL IN 22
DPR GND 23
DPR GND 24
DLCBLO 25
-4R4V 26
SAFETY 27
DLBF O 28
DLPAL O 29
FLD 30
NT SYNC 31
VF SYNC 32
DPR GND 33
DPR GND 34
DPR GND 35
M11 SYNC 36
A GND 37
A GND 38
NT Y 39
NTY GND 40
R-Y GND 41
B-Y GND 42
R-Y IN 43
B-Y IN 44
M11 Y 45
M11Y GND 46
DPR GND 47
DPR GND 48
DPR GND 49
VF Y OUT 50
TO MOTHER BOARD ...CN5
DLCBLK
SAFETY
DLBF
DLPAL
NTSYNC
M2SYNC
IC30
C1 22/6.3
C2 22/6.3
R1 103
R2 103
R6 113
R8 123
IC30
C103 22/6.3
C5 22/6.3
R7 103
R8 103
R12 113
R9 123
TP6
TP2
CF1 NC
CF3 NC
R215 0R00
C16 NC
C15 681
R23 103
IC15
VSD
R253 NC
R254 0R00
IC31
R24 132
C17 104
C18 100
IC15
C12 104
VSD
IC15
VSD
C102 104
CK
CLR
D
PR
Q
IC

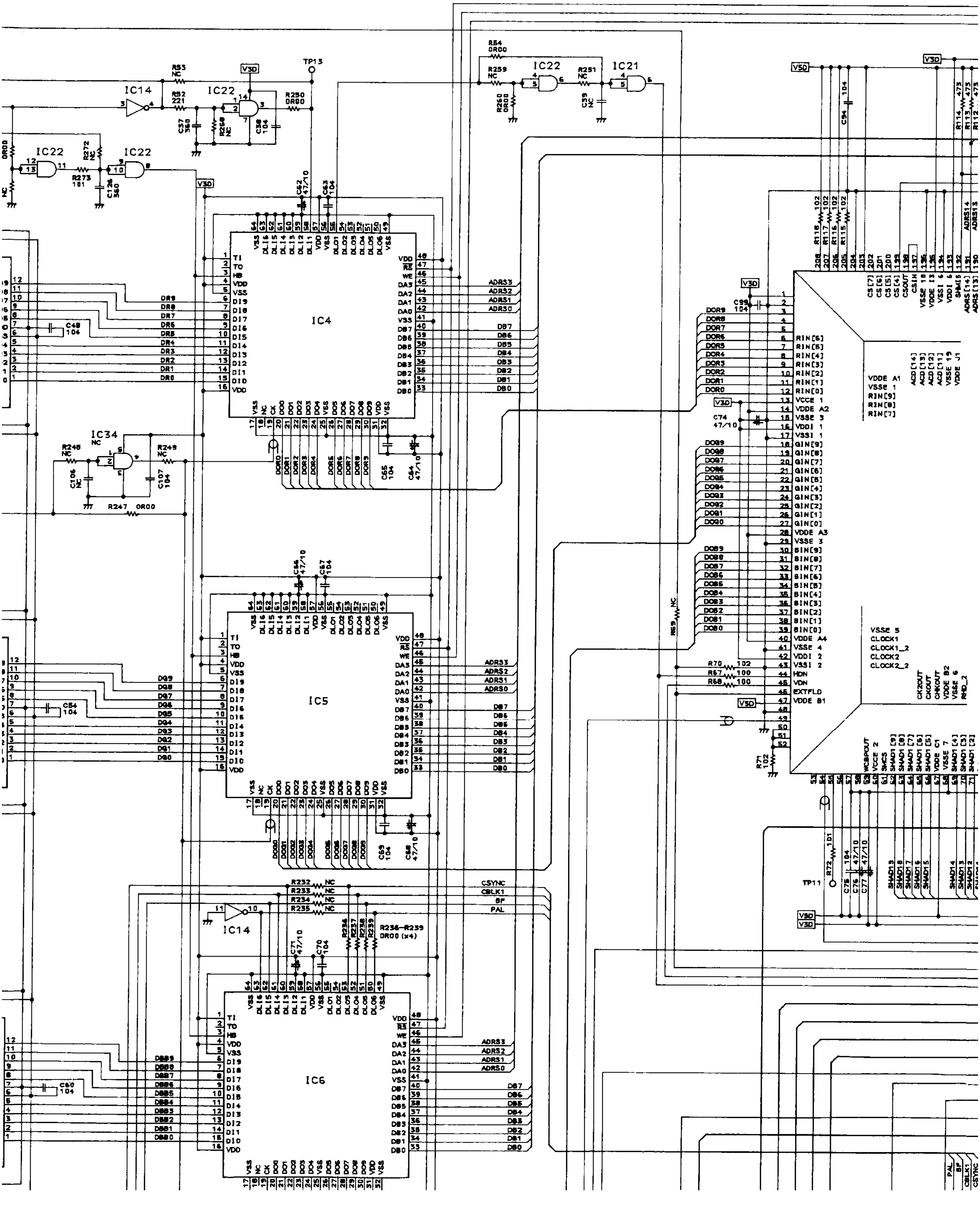
DIGITAL PROCESS BOARD

	IC15	IC17	IC27	IC30	IC32	IC302
Pin 1	0	4.6	3.1	0.8	4.5	2.7
2	0	0	0	2.5	4.5	4.6
3	4.6	0	0	2.5	0	0
4	4.6	4.6	0	4.9	4.5	0
5	2.1	4.6	0	2.5	4.6	4.6
6	2.1	0	4.4	2.5		
7	0	0	0	0.7		
8	4.6	2.2	4.7	0.6		
9	0.5	2.2	0	2.4		
10	4.2	4.6	0	-		
11	4.6	2.1	4.7	-4.4		
12	0	2.2	0	2.3		
13	0	4.6	0	2.3		
14	4.6	4.6	3.1	0.8		

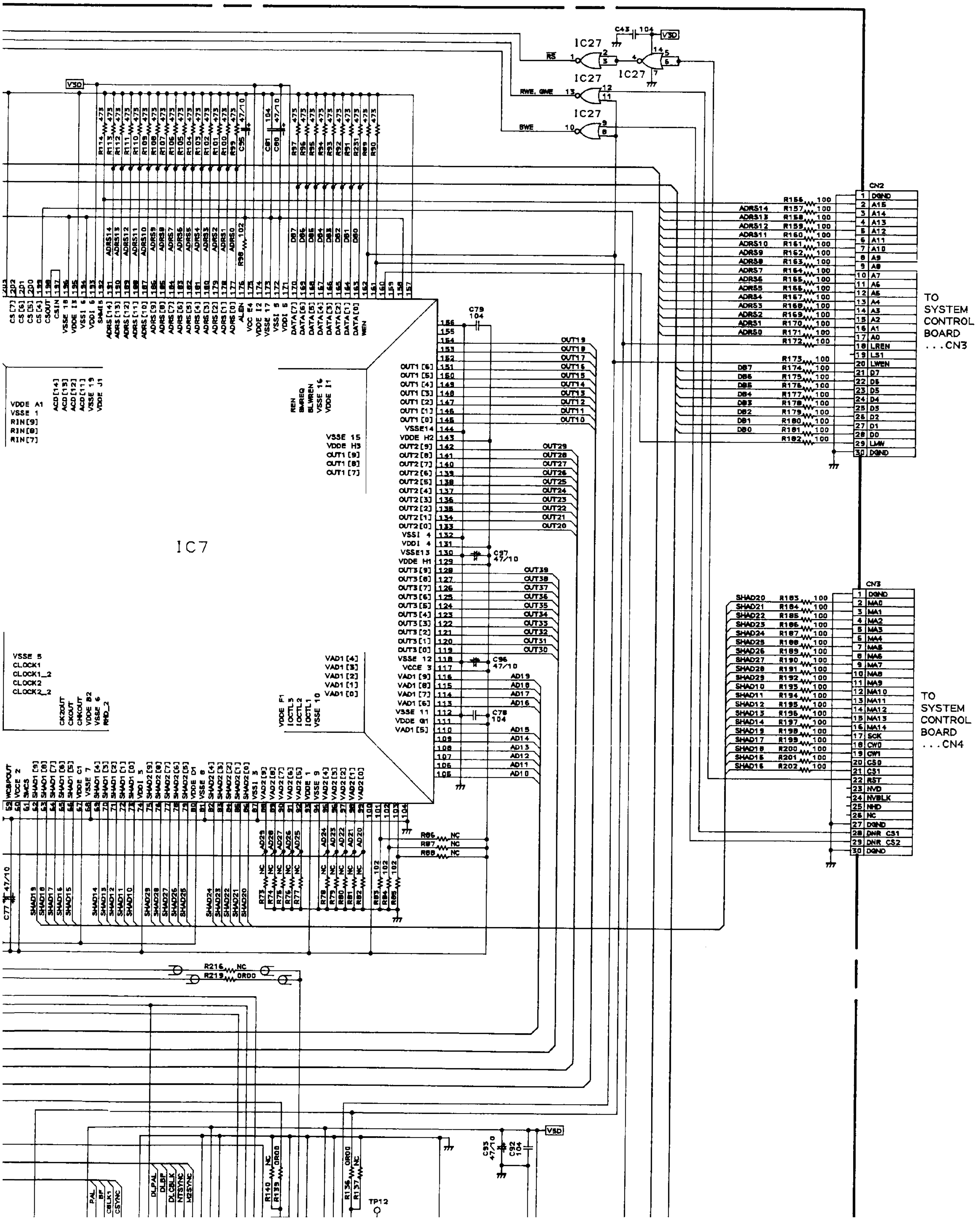
SCHEMATIC DIAGRAM OF DI

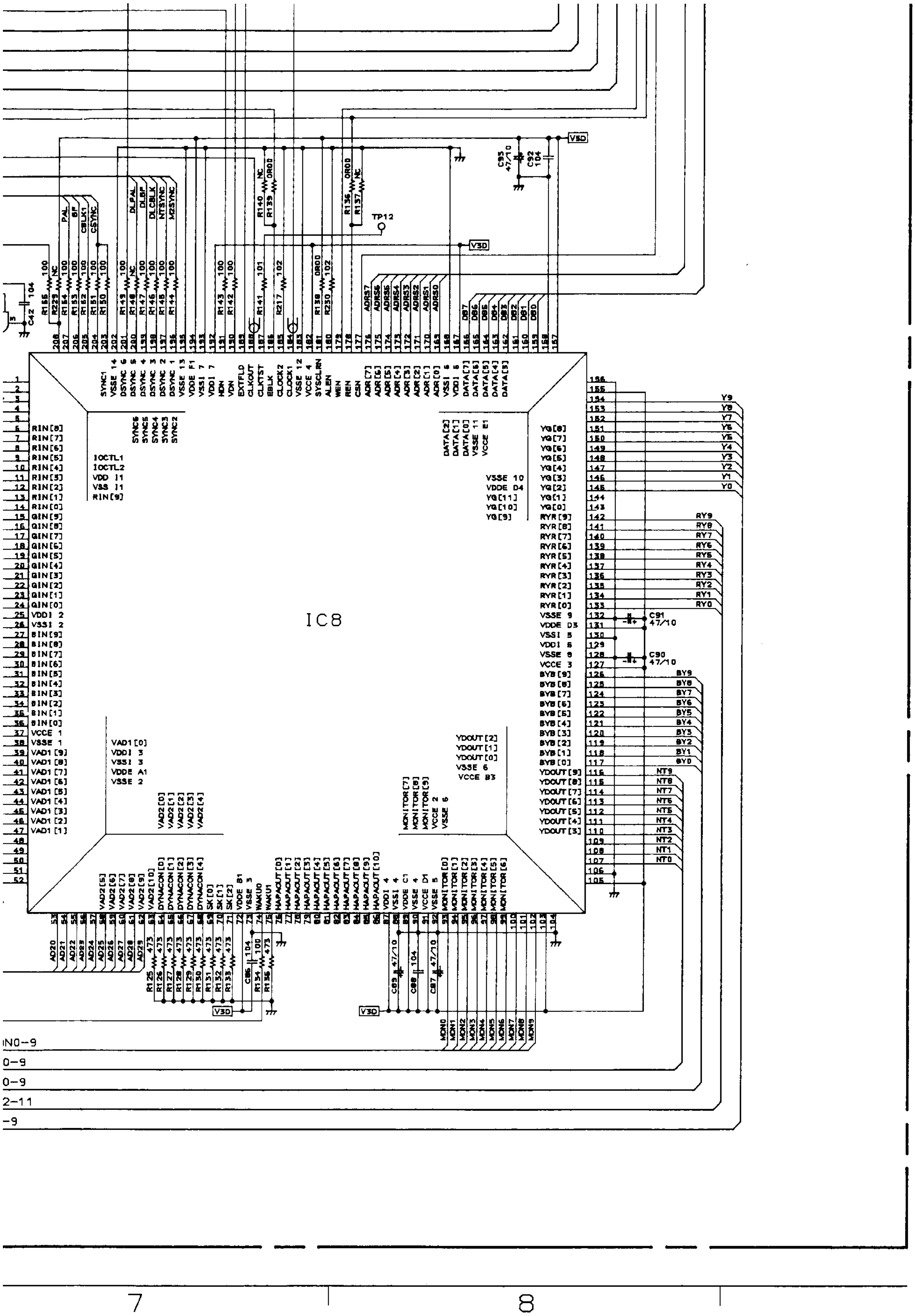

IC1
IC2
IC3
IC14
IC15
IC17
IC18
IC19
IC21
IC22
IC30
IC34
Q1
Q2
Q3
Q4
Q5
Q6
Q10
Q11
L1
L2
V5A
V5D
TP2
TP3
TP4
TP6
TP14
AVDD
AVSS
VRTS
VRT
VR1
VR2
VR3
VRB
VRBS
DVDD
DVSS
CLK
TEST1
TEST2
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
CLR
CK
PR

AM OF DIGITAL PROCESS BOARD

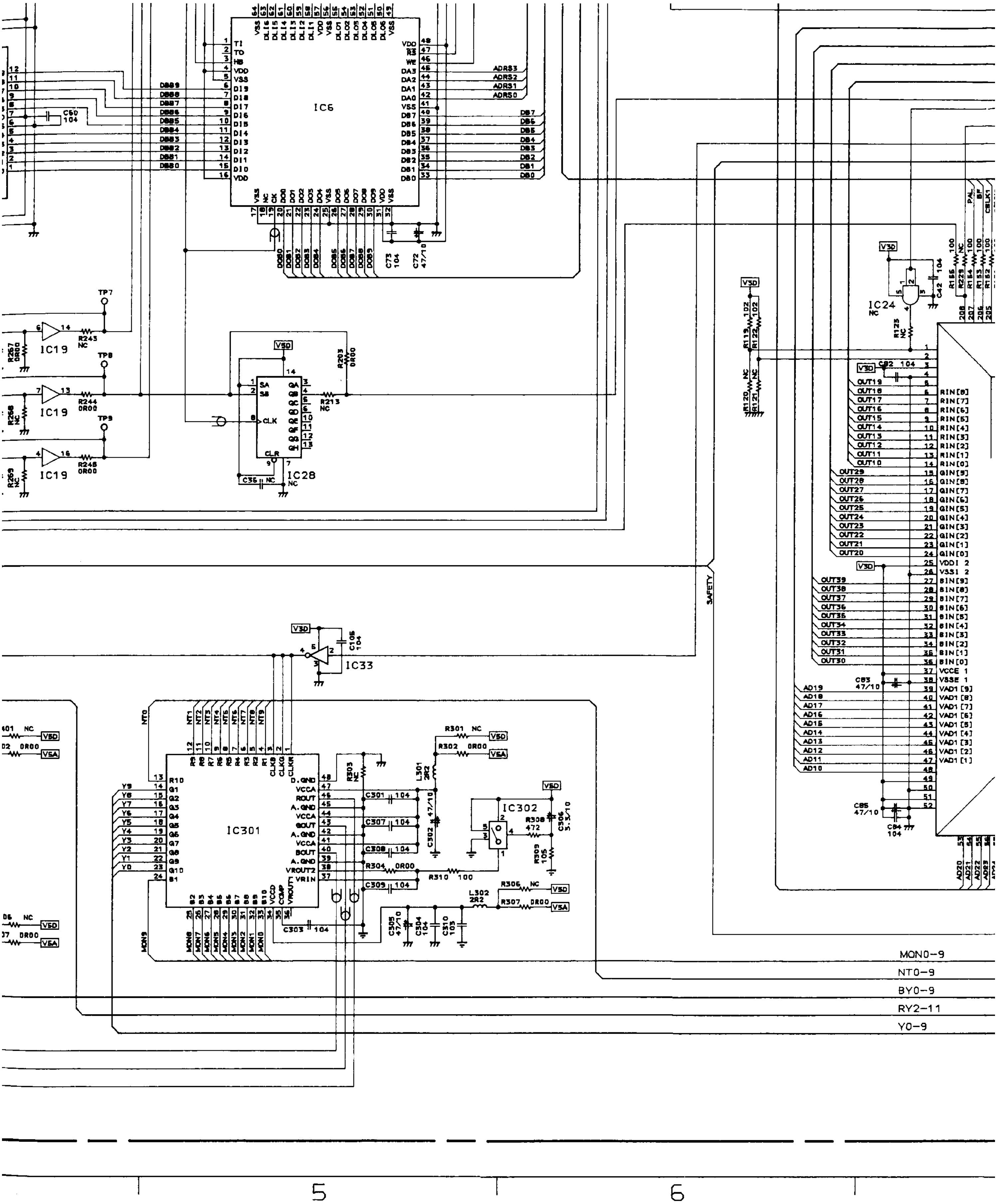


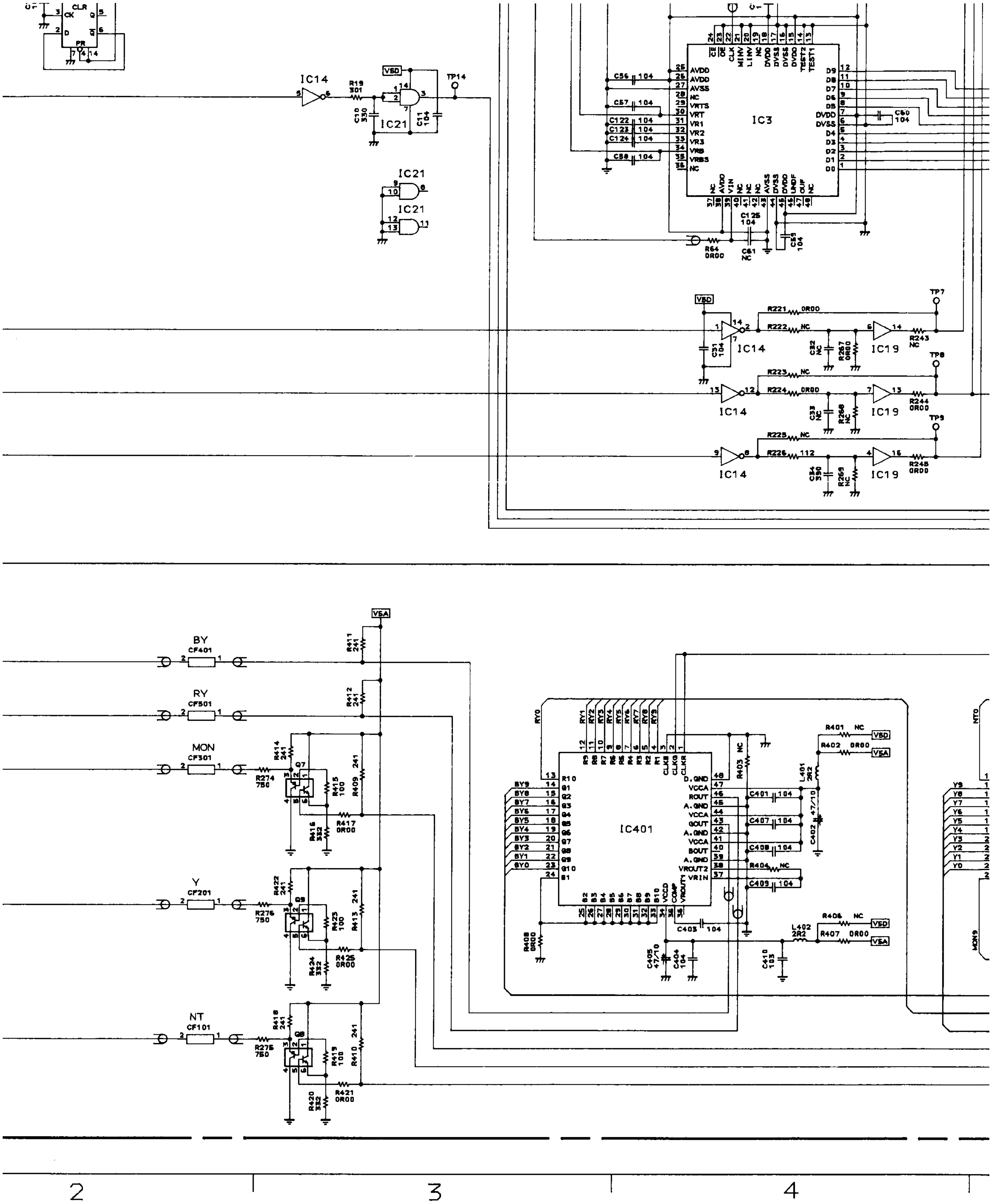
IC4
IC5
IC6
IC14
IC21
IC22
IC34
TP11
TP13
V3D
ADRS3
ADRS2
ADRS1
ADRS0
CSYNC
CBLK1
BF
PAL
R236–R239 0R00 (x4)


IC7
IC27
C43 104
V3D
RS
RWE, GWE
BWE
CN2
TO SYSTEM CONTROL BOARD ...CN3
1 DGND
2 A15
3 A14
4 A13
5 A12
6 A11
7 A10
8 A9
9 A8
10 A7
11 A6
12 A5
13 A4
14 A3
15 A2
16 A1
17 A0
18 LREN
19 LS1
20 LWEN
21 D7
22 D6
23 D5
24 D4
25 D3
26 D2
27 D1
28 D0
29 LMW
30 DGND
CN3
TO SYSTEM CONTROL BOARD ...CN4
1 DGND
2 MA0
3 MA1
4 MA2
5 MA3
6 MA4
7 MA5
8 MA6
9 MA7
10 MA8
11 MA9
12 MA10
13 MA11
14 MA12
15 MA13
16 MA14
17 SCK
18 CW0
19 CW1
20 CS0
21 CS1
22 RST
23 NVD
24 NVBLK
25 NHD
26 NC
27 DGND
28 DNR CS1
29 DNR CS2
30 DGND
R216 NC
R219 0R00
PAL
BF
CBLK1
CSYNC
DLPAL
DLBF
DLCBLK
NTSYNC
M2SYNC
TP12
C93 47/10
C92 104


IC8
V3D
TP12
C93 47/10
C92 104
C91 47/10
C90 47/10
C42 104
C86 104
C85 47/10
C88 104
C87 47/10
R140 NC
R139 DR00
R136 DR00
R137 NC
R141 101
R217 102
R138 DR00
R250 102
R155 100
R229 NC
R154 100
R153 100
R152 100
R151 100
R150 100
R149 100
R148 NC
R147 100
R146 100
R145 100
R144 100
R143 100
R142 100
R125 473
R126 473
R127 473
R128 473
R129 473
R130 473
R131 473
R132 473
R133 473
R134 100
R135 473
PAL
BF
CBLK1
CSYNC
DLPAL
DLBF
DLCBLK
NTSYNC
M2SYNC
ADRS7
ADRS6
ADRS5
ADRS4
ADRS3
ADRS2
ADRS1
ADRS0
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
SYNC1
VSSE 14
DSYNC 6
DSYNC 5
DSYNC 4
DSYNC 3
DSYNC 2
DSYNC 1
VSSE 13
VDDE F1
VSSI 7
VDDI 7
HDN
VDN
EXTFLD
CLKOUT
CLKTST
EBLK
CLOCK2
CLOCK1
VSSE 12
VCCE 4
SYSCLRN
ALEN
WEN
REN
CSN
ADR[7]
ADR[6]
ADR[5]
ADR[4]
ADR[3]
ADR[2]
ADR[1]
ADR[0]
VSSI 6
VDDI 6
DATA[7]
DATA[6]
DATA[5]
DATA[4]
DATA[3]
SYNC6
SYNC5
SYNC4
SYNC3
SYNC2
DATA[2]
DATA[1]
DATA[0]
VSSE 11
VCCE E1
IOCTL1
IOCTL2
VDD I1
VSS I1
RIN[9]
RIN[8]
RIN[7]
RIN[6]
RIN[5]
RIN[4]
RIN[3]
RIN[2]
RIN[1]
RIN[0]
GIN[9]
GIN[8]
GIN[7]
GIN[6]
GIN[5]
GIN[4]
GIN[3]
GIN[2]
GIN[1]
GIN[0]
VDDI 2
VSSI 2
BIN[9]
BIN[8]
BIN[7]
BIN[6]
BIN[5]
BIN[4]
BIN[3]
BIN[2]
BIN[1]
BIN[0]
VCCE 1
VSSE 1
VAD1[9]
VAD1[8]
VAD1[7]
VAD1[6]
VAD1[5]
VAD1[4]
VAD1[3]
VAD1[2]
VAD1[1]
VAD1[0]
VDDI 3
VSSI 3
VDDE A1
VSSE 2
VAD2[0]
VAD2[1]
VAD2[2]
VAD2[3]
VAD2[4]
VAD2[5]
VAD2[6]
VAD2[7]
VAD2[8]
VAD2[9]
VAD2[10]
DYNACON[0]
DYNACON[1]
DYNACON[2]
DYNACON[3]
DYNACON[4]
SK[0]
SK[1]
SK[2]
VDDE B1
VSSE 3
WAKU0
WAKU1
HAPAOUT[0]
HAPAOUT[1]
HAPAOUT[2]
HAPAOUT[3]
HAPAOUT[4]
HAPAOUT[5]
HAPAOUT[6]
HAPAOUT[7]
HAPAOUT[8]
HAPAOUT[9]
HAPAOUT[10]
VDDI 4
VSSI 4
VDDE C1
VSSE 4
VCCE D1
VSSE 5
MONITOR[0]
MONITOR[1]
MONITOR[2]
MONITOR[3]
MONITOR[4]
MONITOR[5]
MONITOR[6]
MONITOR[7]
MONITOR[8]
MONITOR[9]
VCCE 2
VSSE 6
YDOUT[2]
YDOUT[1]
YDOUT[0]
VSSE 6
VCCE B3
VSSE 10
VDDE D4
YG[11]
YG[10]
YG[9]
YG[8]
YG[7]
YG[6]
YG[5]
YG[4]
YG[3]
YG[2]
YG[1]
YG[0]
RYR[9]
RYR[8]
RYR[7]
RYR[6]
RYR[5]
RYR[4]
RYR[3]
RYR[2]
RYR[1]
RYR[0]
VSSE 9
VDDE D3
VSSI 5
VDDI 5
VSSE 8
VCCE 3
BYB[9]
BYB[8]
BYB[7]
BYB[6]
BYB[5]
BYB[4]
BYB[3]
BYB[2]
BYB[1]
BYB[0]
YDOUT[9]
YDOUT[8]
YDOUT[7]
YDOUT[6]
YDOUT[5]
YDOUT[4]
YDOUT[3]
Y9
Y8
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
RY9
RY8
RY7
RY6
RY5
RY4
RY3
RY2
RY1
RY0
BY9
BY8
BY7
BY6
BY5
BY4
BY3
BY2
BY1
BY0
NT9
NT8
NT7
NT6
NT5
NT4
NT3
NT2
NT1
NT0
AD20
AD21
AD22
AD23
AD24
AD25
AD26
AD27
AD28
AD29
MON0
MON1
MON2
MON3
MON4
MON5
MON6
MON7
MON8
MON9
IN0–9
0–9
0–9
2–11
–9
7
8

WV–F565HE
DIGITAL
PROCESS
BOARD

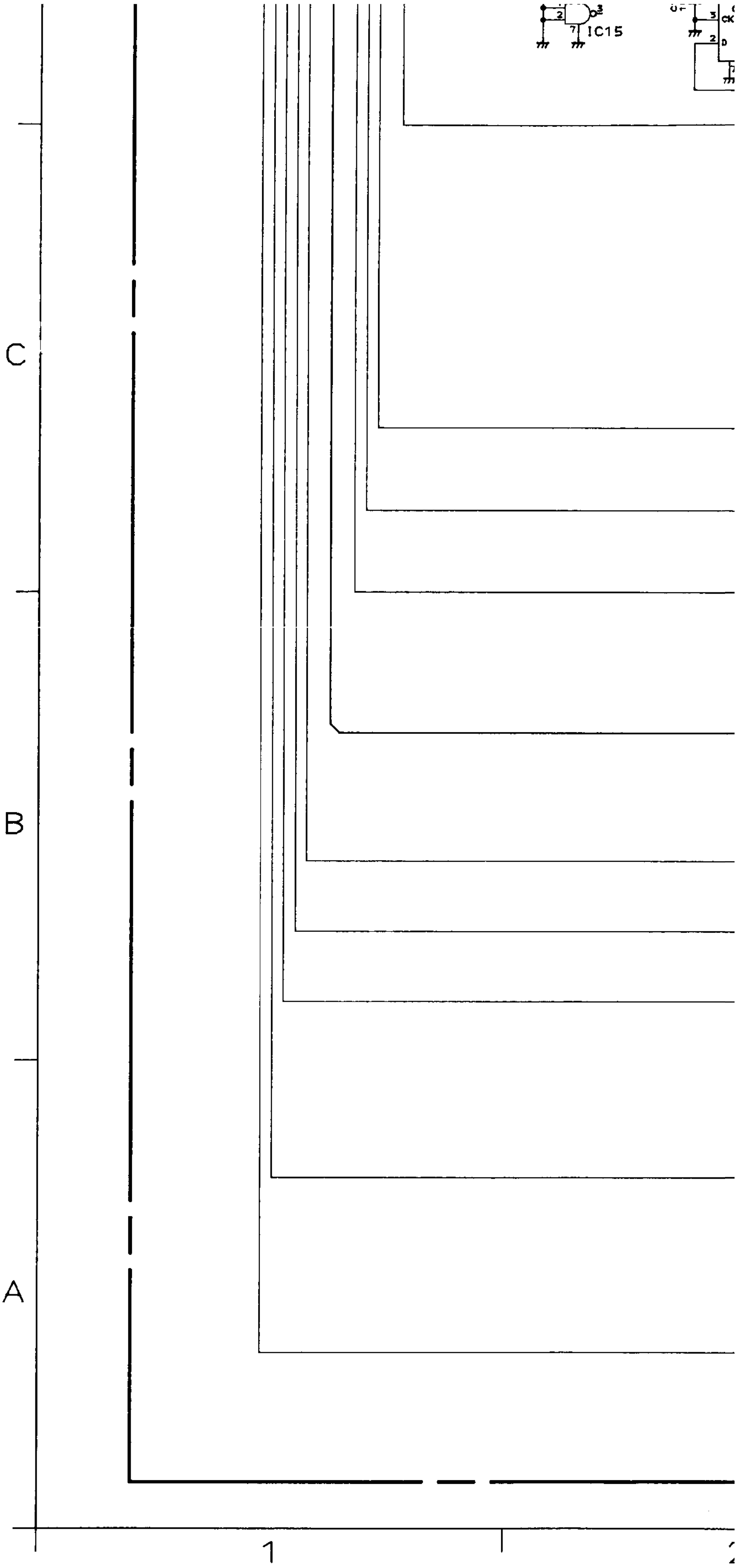

IC6
IC19
IC28
IC24
IC33
IC301
IC302
TP7
TP8
TP9
C60 104
C73 104
C72 47/10
C36 NC
C42 104
C82 104
C83 47/10
C85 47/10
C84 104
C105 104
C301 104
C307 104
C308 104
C309 104
C303 104
C302 47/10
C305 47/10
C304 104
C310 103
C306 3.3/10
R243 NC
R244 0R00
R245 0R00
R267 0R00
R268 NC
R269 NC
R203 0R00
R213 NC
R119 102
R122 102
R120 NC
R121 NC
R123 NC
R155 100
R229 NC
R154 100
R153 100
R152 100
R301 NC
R302 0R00
R303 NC
R304 0R00
R308 472
R309 105
R310 100
R306 NC
R307 0R00
L301 2R2
L302 2R2
ADRS3
ADRS2
ADRS1
ADRS0
DB0–DB7
DBB0–DBB9
DOB0–DOB9
OUT10–OUT39
AD10–AD19
RIN[0]–RIN[9]
GIN[0]–GIN[9]
BIN[0]–BIN[9]
VAD1[1]–VAD1[9]
VDDI 2
VSSI 2
VCCE 1
VSSE 1
V3D
V5D
V5A
SAFETY
PAL
BF
CBLK1
NT0–NT9
MON0–MON9
Y0–Y9
R10
G1–G10
B1–B10
ROUT
GOUT
BOUT
VROUT2
VRIN
VRFOUT
COMP
VCCD
D.GND
A.GND
VCCA
CLKR
CLKG
CLKB
SA
SB
CLK
CLR
QA–QH
MON0−9
NT0−9
BY0−9
RY2−11
Y0−9
5
6


IC14
R19 301
C10 330
IC21
C11 104
V5D
TP14
IC21
IC21
IC3
C56 104
C57 104
C122 104
C123 104
C124 104
C58 104
C60 104
C125 104
C59 104
R64 0R00
C61 NC
AVDD
AVSS
VRTS
VRT
VR1
VR2
VR3
VRB
VRBS
NC
D9
D8
D7
D6
D5
DVDD
DVSS
D4
D3
D2
D1
D0
CE
OE
CLK
MINV
LINV
TEST2
TEST1
VIN
UNDF
OVF
TP7
TP8
TP9
R221 0R00
R222 NC
R223 NC
R224 0R00
R225 NC
R226 112
C31 104
C32 NC
C33 NC
C34 330
R267 0R00
R268 NC
R269 NC
R243 NC
R244 0R00
R245 0R00
IC19
V5A
BY
CF401
RY
CF501
MON
CF301
Y
CF201
NT
CF101
R411 241
R412 241
R414 241
R274 750
Q7
R415 100
R409 241
R416 332
R417 0R00
R422 241
R276 750
Q9
R423 100
R413 241
R424 332
R425 0R00
R418 241
R275 750
Q8
R419 100
R410 241
R420 332
R421 0R00
IC401
RY0
RY1
RY2
RY3
RY4
RY5
RY6
RY7
RY8
RY9
BY9
BY8
BY7
BY6
BY5
BY4
BY3
BY2
BY1
BY0
R10
R9
R8
R7
R6
R5
R4
R3
R2
R1
CLKB
CLKG
CLKR
D.GND
VCCA
ROUT
A.GND
GOUT
BOUT
VROUT2
VRIN
VROUT1
COMP
VCCD
R403 NC
R401 NC
R402 0R00
L401 2R2
C401 104
C407 104
C408 104
C402 47/10
R404 NC
C409 104
C403 104
R406 NC
R407 0R00
L402 2R2
C410 103
C405 47/10
C404 104
R408 0R00
NT0
NT9
MON9
Y9
Y8
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
2
3
4

2	0	0	0	2.5	4.5	4.6
3	4.6	0	0	2.5	0	0
4	4.6	4.6	0	4.9	4.5	0
5	2.1	4.6	0	2.5	4.6	4.6
6	2.1	0	4.4	2.5		
7	0	0	0	0.7		
8	4.6	2.2	4.7	0.6		
9	0.5	2.2	0	2.4		
10	4.2	4.6	0	-		
11	4 6	2.1	4.7	-4.4		
12	0	2.2	0	2.3		
13	0	4.6	0	2.3		
14	4.6	4.6	3.1	0.8		

	B	C	E
Q1	0.8	4.2	0.2
2	4.2	4.7	4.9
3	4.2	4.7	4.9
4	0.7	4.2	0.1
5	0.8	4.0	0.2
6	4.0	3.2	4.6
11	0 6	4.1	0

	Q7	Q8	Q9
Pin 1	4.7	4.7	4.7
2	3.4	3.4	3.4
3	4.0	4.0	4.0
4	0	0	0
5	4.0	4.0	4.0
6	3.4	3.4	3.4



Note: The value indicated in the schematic diagram should be read as follows:

□ □ □

Multiplier (0 - 5)

2nd. Significant Digit (0 - 9)

1st. Siginificant Digit (1 - 9)

<Example>

For Resistor:

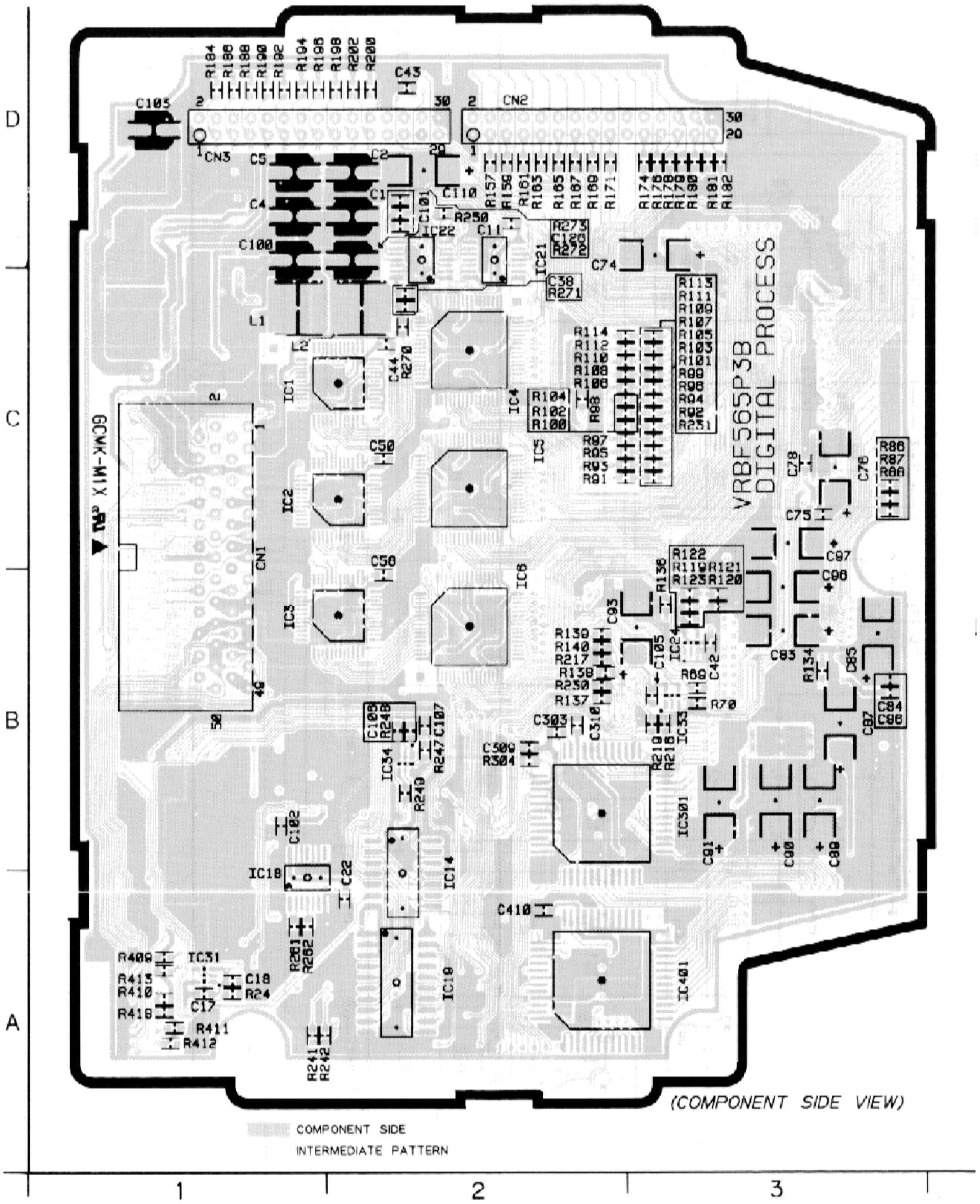
330 → 33×10^0 = 33 Ω
561 → 56×10^1 = 560 Ω
123 → 12×10^3 = 12k Ω
0R00 = 0 Ω

For Capacitor:

820 → 82×10^0 = 82 pF
102 → 10×10^2 = 1000 pF = 0.001 µF
104 → 10×10^4 = 100000 pF = 0.1 µF
The suffix attached to capacitance indicates a type of capacitor.

CONDUCTOR VIEW OF

DIGITAL PROCESS BOARD


D
C
B
A
1
2
3
R184
R186
R188
R190
R192
R194
R196
R198
R202
R200
C43
C105
CN3
CN2
30
20
C5
C4
C100
C2
C1
C101
C110
R250
IC22
C11
R157
R159
R161
R163
R165
R167
R169
R171
R174
R176
R178
R180
R181
R182
R273
C120
R272
IC21
C38
R271
C74
R113
R111
R109
R107
R105
R103
R101
R99
R98
R94
R92
R251
R114
R112
R110
R108
R106
R104
R102
R100
R93
R97
R95
R91
L1
L2
C44
R270
IC1
IC2
IC3
IC4
IC5
IC6
C50
C56
6CMK-M1X
CN1
VRBF565P3B
DIGITAL PROCESS
C78
C76
R86
R87
R88
C75
C97
C96
C83
R122
R119
R121
R123
R120
R136
C93
IC24
C105
C42
R69
R70
R139
R140
R217
R138
R230
R137
C310
IC33
R210
R218
C303
C509
R304
C134
C85
C84
C86
C87
C108
R248
C107
IC34
R247
R249
IC301
C91
C90
C89
C102
IC18
C22
IC14
C410
R261
R262
IC10
IC401
R409
R413
R410
R418
IC31
C17
C18
R24
R411
R412
R241
R242
40
50

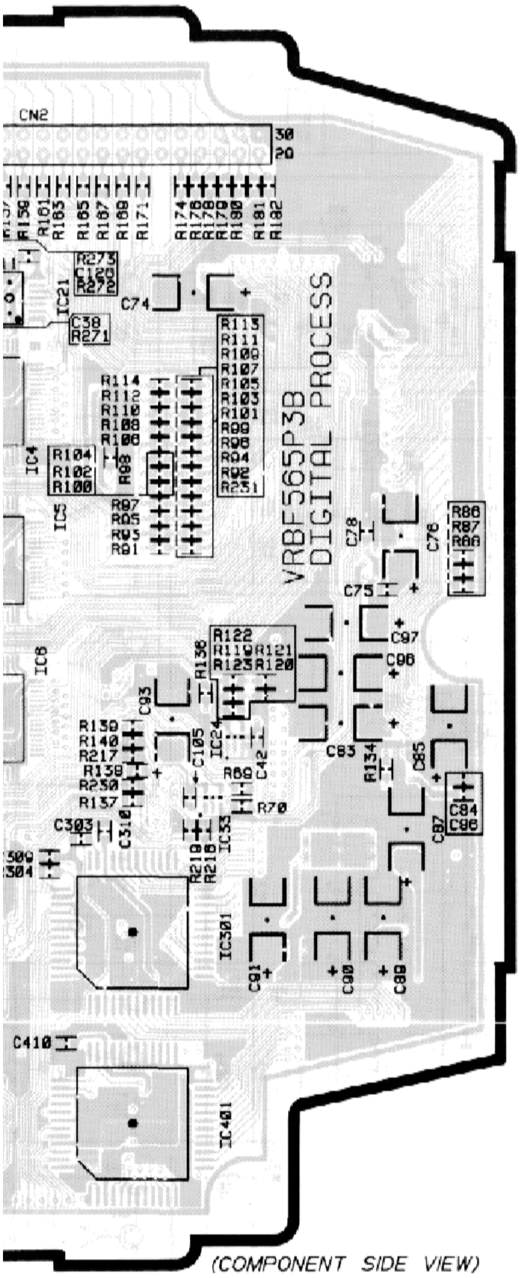
(COMPONENT SIDE VIEW)

COMPONENT SIDE

INTERMEDIATE PATTERN

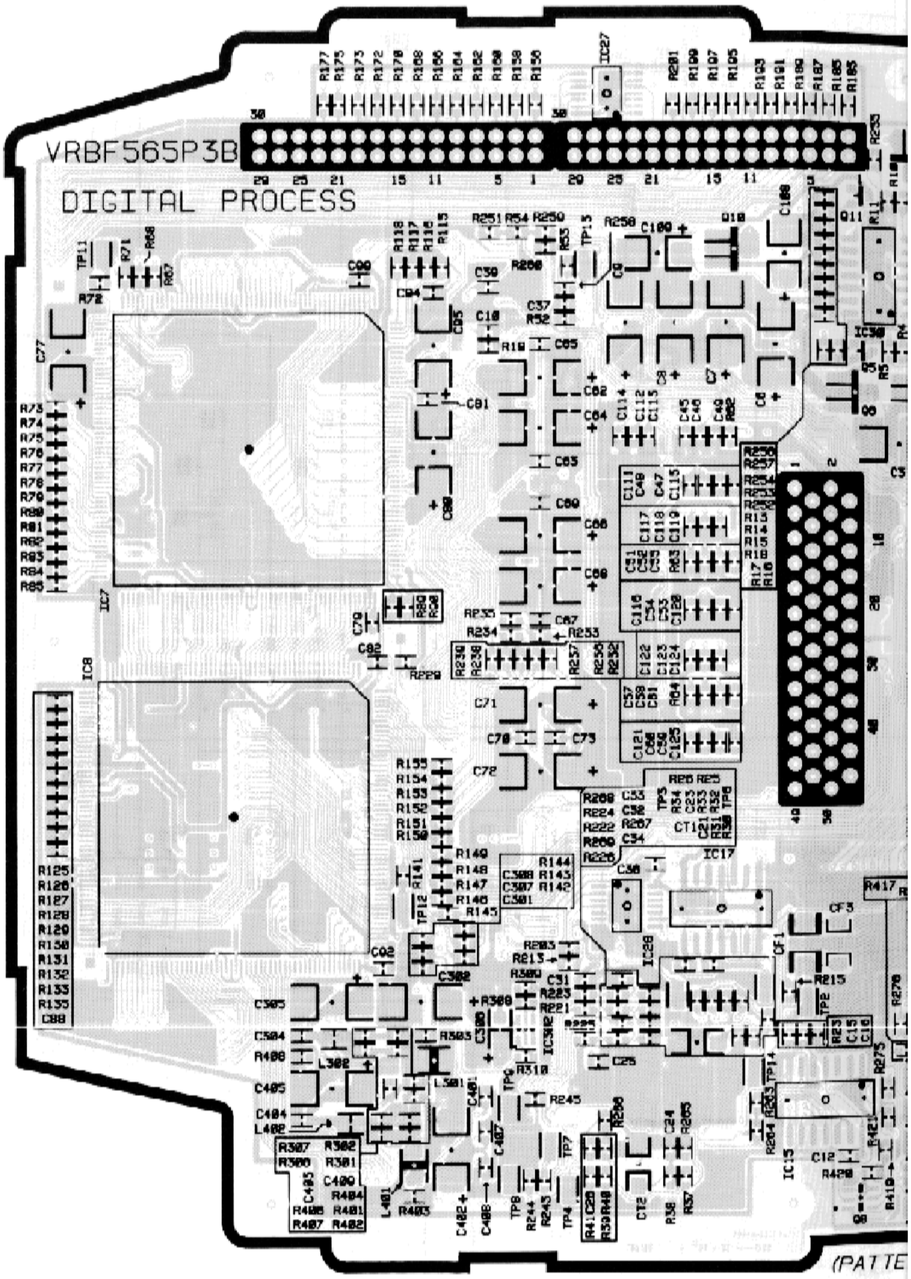
CONDUCTOR VIEW OF DIGITAL PROCESS BOARD

CESS BOARD


CN2
30
20
VRBF565P3B
DIGITAL PROCESS
IC4
IC5
IC6
IC21
IC24
IC53
IC301
IC401
C74
C75
C76
C78
C83
C84
C85
C86
C87
C89
C90
C91
C93
C97
C98
C105
C303
C310
C410
R86
R87
R88
R122
R119
R121
R123
R120
R138
R139
R140
R217
R230
R137
R69
R70
R134
R218
R219
R273
C120
R272
C38
R271
R104
R102
R100
R98
R97
R95
R93
R91
R113
R111
R109
R107
R105
R103
R101
R99
R96
R94
R92
R231
R114
R112
R110
R108
R106

(COMPONENT SIDE VIEW)

DIGITAL PROCESS BOARD


VRBF565P3B
DIGITAL PROCESS
IC7
IC8
IC13
IC15
IC17
IC27
IC28
IC30
IC302
TP1.5
TP2
TP3
TP4
TP6
TP7
TP8
TP11
TP12
TP14
L301
L302
L401
L402
CT1
CT2
CF1
CF3
Q1
Q10
Q11
C88
C77
C302
C303
C304
C305
C400
C401
C402
C403
C404
C405
C407
C408
R72
R73
R74
R75
R76
R77
R78
R79
R80
R81
R82
R83
R84
R85
R125
R126
R127
R128
R129
R130
R131
R132
R133
R135
R150
R151
R152
R153
R154
R155
R145
R146
R147
R148
R149
R141
R142
R143
R144
R307
R302
R306
R301
R304
R403
R406
R401
R407
R402
R408
R303
R310
R245
R215
R275
R417
R419
R420
R421
29
25
21
15
11
5
1
30
10
20
30
40
50

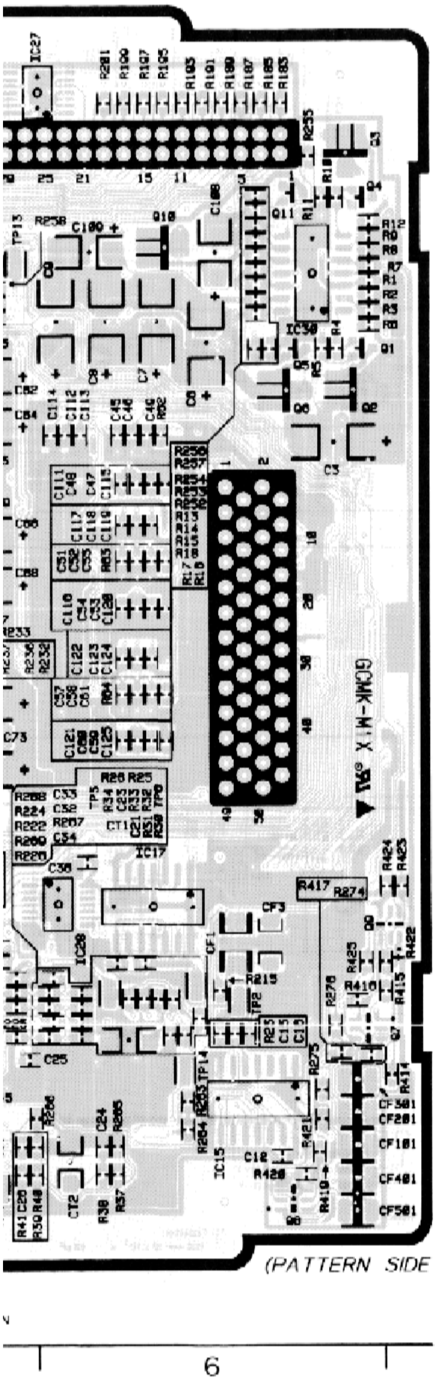
(PATTE

▨ PATTERN SIDE
INTERMEDIATE PATTERN

3 4 5 6

ɔ

CESS BOARD


IC27
IC30
IC17
IC28
IC15
GCMK-M X
CF1
CF3
TP2
TP5
TP13
TP14
CT1
CT2
R417
R274
CF301
CF201
CF101
CF401
CF501
6

(PATTERN SIDE VIEW)

<Index>

DIGGITAL PROCESS BOARD

IC1	C1/C2
IC2	C1/C2
IC3	B1/B2
IC4	C2
IC5	C2
IC6	B2
IC7	C4/C5
IC8	B4/B5
IC14	A2,B2
IC15	A6
IC17	B6
IC18	A1/A2,B1/B2
IC19	A2
IC21	C2,D2
IC22	C2,D2
IC27	D5/D6
IC30	C6,D6
IC31	A1
IC33	B3
IC301	B2/B3
IC302	A5
IC401	A2/A3
Q1	C6
Q2	C6
Q3	D6
Q4	D6
Q5	C6
Q6	C6
Q7	A6
Q8	A6
Q9	B6
Q10	D6
Q11	D6

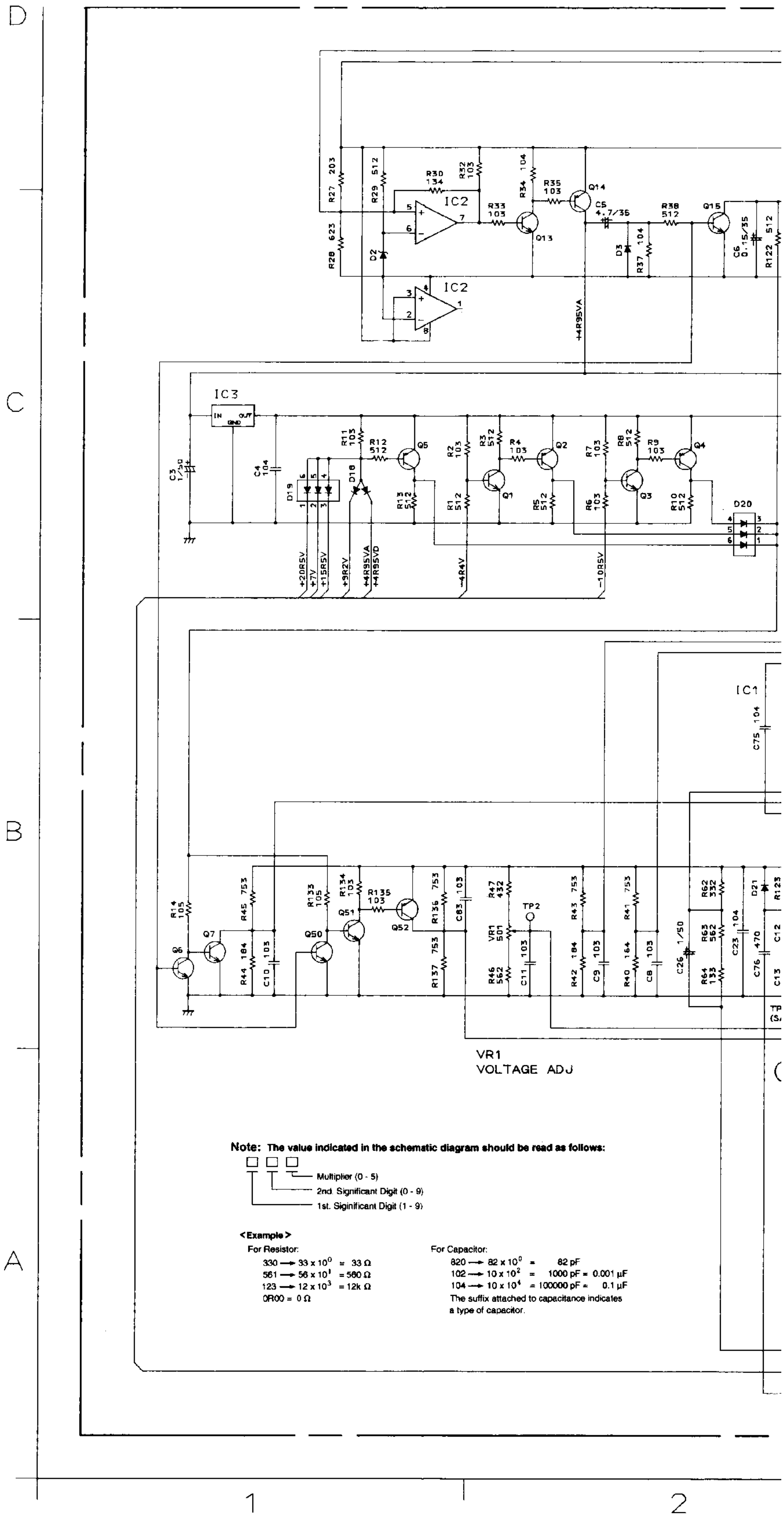
<Index>

POWER BOARD

IC1	B2	D1	C3
IC2	C1	D2	C1
IC3	C1	D3	C2
IC9	C4	D5	C4
IC10	A4, B4	D6	C4
IC11	B3	D7	C4
		D10	B4
Q1	C2	D11	B4
Q2	C2	D12	B4
Q3	C2	D13	B4
Q4	C2	D14	B4
Q5	C1	D15	A4
Q6	B1	D16	A4
Q7	B1	D17	A4
Q13	C2	D18	C1
Q14	C2	D19	C1
Q15	C2	D20	C2
Q21	C3	D21	B2
Q22	C3	D24	C3
Q23	C3		
Q24	C4		
Q25	C4		
Q26	C4		
Q27	C4		
Q28	C3		
Q29	B3		
Q31	C3		
Q32	C4		
Q33	C4		
Q34	C4		
Q35	B3		
Q36	B3		
Q37	B4		
Q38	B4		
Q39	B4		
Q40	B4		
Q41	B4		
Q42	A4		
Q43	A4		
Q44	A4		
Q45	B3		
Q46	B3		
Q47	D3		
Q48	C3		
Q49	D3		
Q50	B1		
Q51	B1		
Q52	B1		

SCHE

POWER BOARD


D
C
B
A
1
2
IC1
IC2
IC3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q13
Q14
Q15
Q50
Q51
Q52
D2
D3
D18
D19
D20
D21
R27 203
R28 623
R29 512
R30 134
R32 103
R33 103
R34 104
R35 103
R37 104
R38 512
C5 4.7/35
C6 0.15/35
R122
C3 1/50
C4 104
R11 103
R12 512
R13 512
R1 512
R2 103
R3 512
R4 103
R5 512
R6 103
R7 103
R8 512
R9 103
R10 512
+20RSV
+7V
+15RSV
+9R2V
+4R9SVA
+4R9SVD
-4R4V
-10RSV
+4R9SVA
C75 104
R14 105
R45 753
R44 164
C10 103
R133 105
R134 103
R135 103
R136 753
R137 753
C83 103
R47 432
VR1 501
R46 562
C11 103
TP2
R43 753
R42 164
C9 103
R41 753
R40 164
C8 103
C26 1/50
R62 332
R63 562
R64 133
C23 104
C76 470
C12
C13
R123
VR1
VOLTAGE ADJ

Note: The value indicated in the schematic diagram should be read as follows:

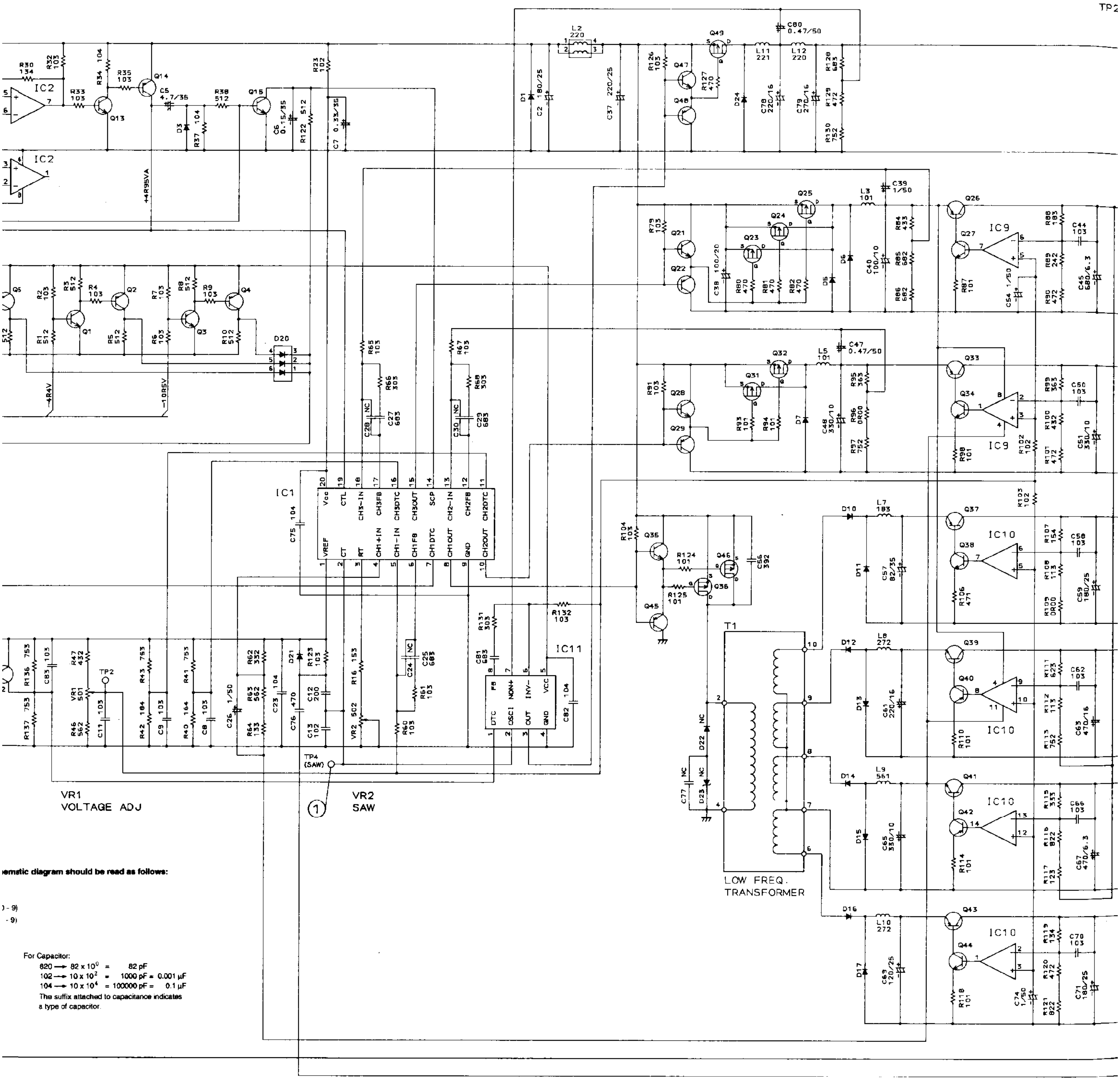
□□□
Multiplier (0 - 5)
2nd. Significant Digit (0 - 9)
1st. Significant Digit (1 - 9)

<Example>

For Resistor:
330 → 33 x 10^0 = 33 Ω
561 → 56 x 10^1 = 560 Ω
123 → 12 x 10^3 = 12k Ω
0R00 = 0 Ω

For Capacitor:
820 → 82 x 10^0 = 82 pF
102 → 10 x 10^2 = 1000 pF = 0.001 µF
104 → 10 x 10^4 = 100000 pF = 0.1 µF
The suffix attached to capacitance indicates a type of capacitor.

SCHEMATIC DIAGRAM OF POWER BOARD


TP2
L2 220
C80 0.47/50
Q49
L11 221
L12 220
R128 683
R129 472
R130 752
R126 103
Q47
Q48
R127 470
D24
C78 220/16
C79 270/16
D1
C2 180/25
C37 220/25
R30 134
R32 103
IC2
R33 103
Q13
R34 104
R35 103
Q14
C5 4.7/35
D3
R37 104
R38 512
Q15
C6 0.15/35
R122 512
R23 102
C7 0.33/35
+4R9SVA
IC2
Q25
L3 101
C39 1/50
Q24
Q23
R79 103
Q21
Q22
C38 100/20
R80 470
R81 470
R82 470
D5
D6
C40 100/10
R84 433
R85 682
R86 682
Q26
Q27
IC9
R88 183
C44 103
R89 242
R87 101
C54 1/50
R90 472
C45 680/6.3
Q5
R2 103
R3 512
R4 103
Q2
R7 103
R8 512
R9 103
Q4
R1 512
Q1
R5 512
R6 103
Q3
R10 512
D20
+R4V
-10R5V
R65 103
R66 303
C28 NC
C27 683
R67 103
R68 303
C30 NC
C29 683
C47 0.47/50
Q32
L5 101
Q31
R91 103
Q28
Q29
R93 101
R94 101
D7
C48 330/10
R95 363
R96 0R00
R97 752
Q33
Q34
IC9
R98 101
R99 363
C50 103
R100 432
R101 472
R102 102
C51 330/10
IC1
C75 104
Vcc
CTL
CH3-IN
CH3FB
CH3DTC
CH3OUT
SCP
CH2-IN
CH2FB
CH2DTC
VREF
CT
RT
CH1+IN
CH1-IN
CH1FB
CH1DTC
CH1OUT
GND
CH2OUT
R104 103
Q35
R124 101
Q46
C56 392
R125 101
Q36
Q45
R103 102
D10
L7 183
D11
C57 82/35
Q37
Q38
IC10
R107 154
C58 103
R108 113
R106 471
R109 0R00
C59 180/25
R132 103
R131 303
C81 683
IC11
FB
NON+
INV-
VCC
DTC
OSC1
OUT
GND
C82 104
T1
D12
L8 272
D13
C61 220/16
Q39
Q40
IC10
R111 623
C62 103
R112 113
R110 101
R113 752
C63 470/16
R136 753
C83 103
R47 432
TP2
VR1 501
R43 753
R41 753
R62 332
D21
R123 103
R16 153
C24 NC
C25 683
R137 753
R46 562
C11 103
R42 164
C9 103
R40 164
C8 103
C26 1/50
R63 562
R64 133
C23 104
C76 470
C12 200
C13 102
VR2 502
R61 103
R60 103
NC
D22
NC
C77
D23
D14
L9 561
D15
C65 330/10
Q41
Q42
IC10
R115 333
C66 103
R116 822
R114 101
R117 123
C67 470/6.3
TP4 (SAW)
①
VR1
VOLTAGE ADJ
VR2
SAW
LOW FREQ.
TRANSFORMER
D16
L10 272
D17
C69 120/25
Q43
Q44
IC10
R119 134
C70 103
R120 472
R118 101
C74 1/50
R121 822
C71 180/25

ematic diagram should be read as follows:

) - 9)

- 9)

For Capacitor:

820 → 82 x 10^0 = 82 pF

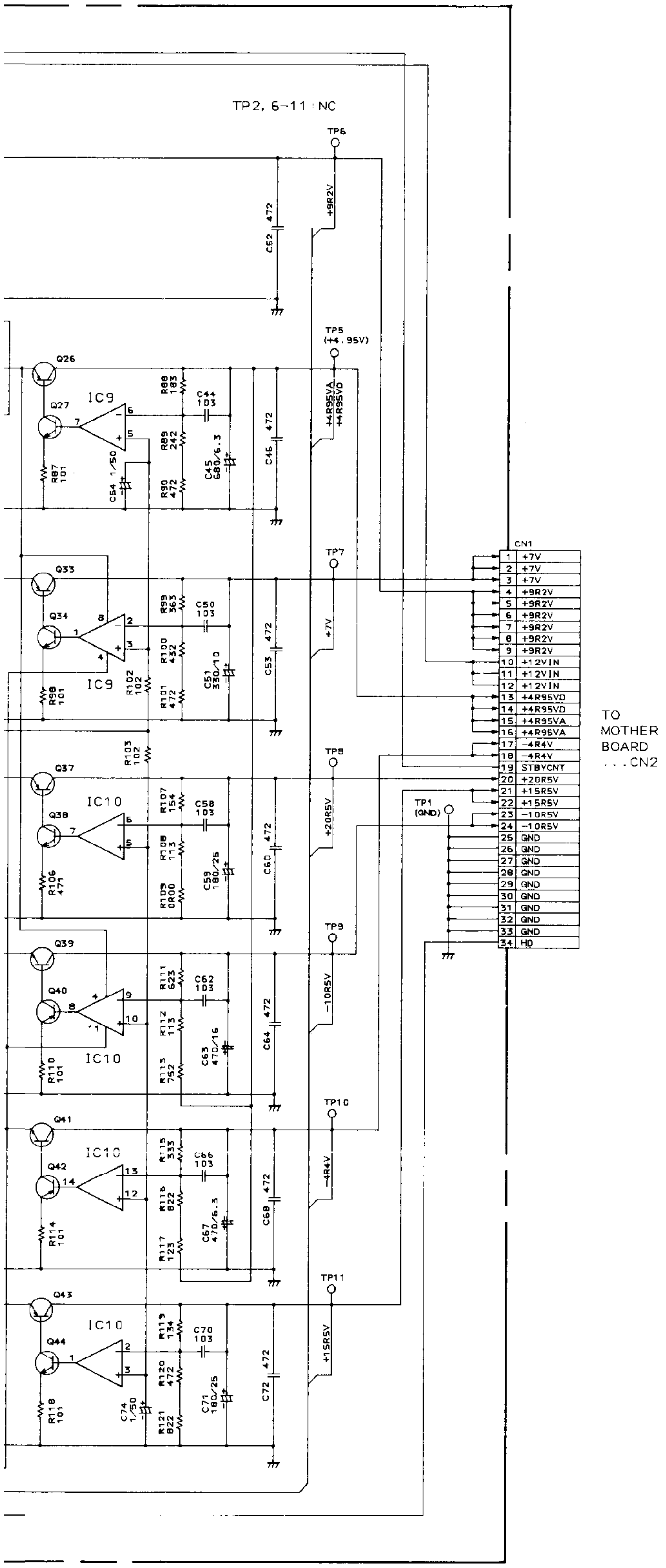
102 → 10 x 10^2 = 1000 pF = 0.001 µF

104 → 10 x 10^4 = 100000 pF = 0.1 µF

The suffix attached to capacitance indicates a type of capacitor.

2 3 4

RD


TP2, 6~11 : NC
TP6
+9R2V
C52 472
TP5
(+4.95V)
+4R95VA
+4R95VD
Q26
Q27
IC9
R88 183
C44 103
R89 242
R90 472
C45 680/6.3
C54 1/50
R87 101
C46 472
TP7
Q33
Q34
IC9
R99 363
C50 103
R100 432
R101 472
R102 102
C51 330/10
R98 101
+7V
C53 472
R103 102
TP8
Q37
Q38
IC10
R107 154
C58 103
R108 113
R109 0R00
C59 180/25
R106 471
+20R5V
C60 472
TP1
(GND)
TP9
Q39
Q40
IC10
R111 623
C62 103
R112 113
R113 752
C63 470/16
R110 101
-10R5V
C64 472
TP10
Q41
Q42
IC10
R115 333
C66 103
R116 822
R117 123
C67 470/6.3
R114 101
-4R4V
C68 472
TP11
Q43
Q44
IC10
R119 134
C70 103
R120 472
R121 822
C71 180/25
C74 1/50
R118 101
+15R5V
C72 472
CN1
1 +7V
2 +7V
3 +7V
4 +9R2V
5 +9R2V
6 +9R2V
7 +9R2V
8 +9R2V
9 +9R2V
10 +12VIN
11 +12VIN
12 +12VIN
13 +4R95VD
14 +4R95VD
15 +4R95VA
16 +4R95VA
17 -4R4V
18 -4R4V
19 STBYCNT
20 +20R5V
21 +15R5V
22 +15R5V
23 -10R5V
24 -10R5V
25 GND
26 GND
27 GND
28 GND
29 GND
30 GND
31 GND
32 GND
33 GND
34 HD
TO
MOTHER
BOARD
. . . CN2

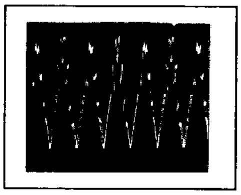
POWER BOARD

	IC1	IC2	IC3	IC9	IC10	IC11
Pin 1	2.5	-	5.1	0.7	0.6	1.2
2	1.6	0	0	1.4	1.4	1.6
3	1.3	11.9	11.9	1.4	1.4	6.0
4	1.4	0		-4.8	5.2	0
5	1.4	7.2		1.4	1.4	5.1
6	1.6	6.0		1.4	1.4	1.4
7	1.8	6.3		1.0	0.6	1.4
8	9.0	11.9		5.2	-0.6	0.9
9	0				1.4	
10	7.7				1.4	
11	1.8				1.3	
12	1.7				1.4	
13	1.3				1.4	
14	0				-0.7	
15	7.8					
16	1.7					
17	1.5					
18	1.3					
19	11.9					
20	9.1					

	B	C	E
Q1	-1.2	5.1	0
2	5.1	0	5.1
3	-2.7	5.1	0
4	5.1	0	5.1
5	5.1	0	5.1
6	0	0	0
7	0	1.8	0
13	0.7	0	0
14	11.2	11.9	11.9
15	0	0	0
22	7.7	0	6.6
23	(G) 6.7	(D) 5.3	(S) 11.9
24	(G) 6.7	(D) 5.3	(S) 11.9
25	(G) 6.6	(D) 5.3	(S) 11.9
26	4.6	5.0	5.2
27	0.9	4.6	0.3
28	7.7	11.9	5.4
29	7.7	0	5.4
31	(G) 5.5	(D) 7.3	(S) 11.9
32	(G) 5.5	(D) 7.3	(S) 11.9
33	6.7	7.0	7.3
34	0.7	6.7	0.1
35	9.0	11.9	7.0
36	(G) 7.1	(D) 0	(S) 11.9
37	0	0	0
38	0.6	0	0.1
39	-11.8	-10.5	-11.2
40	-0.6	0	-11.2
41	-4.8	-4.4	-4.1
42	-0.7	-4.1	-0.7
43	16.7	15.4	16.1
44	0.6	16.1	0
45	9.0	0	7.0
46	(G) 7.1	(D) 0	(S) 11.9
47	6.0	11.9	3.5
48	6.0	0	3.5
49	(G) 3.7	(D) 9.2	(S) 11.9
50	0	0	0
51	0	2.5	0
52	2.5	1.2	2.5

POWER BOARD

1. 10μsec/DIV, 0.1V/DIV



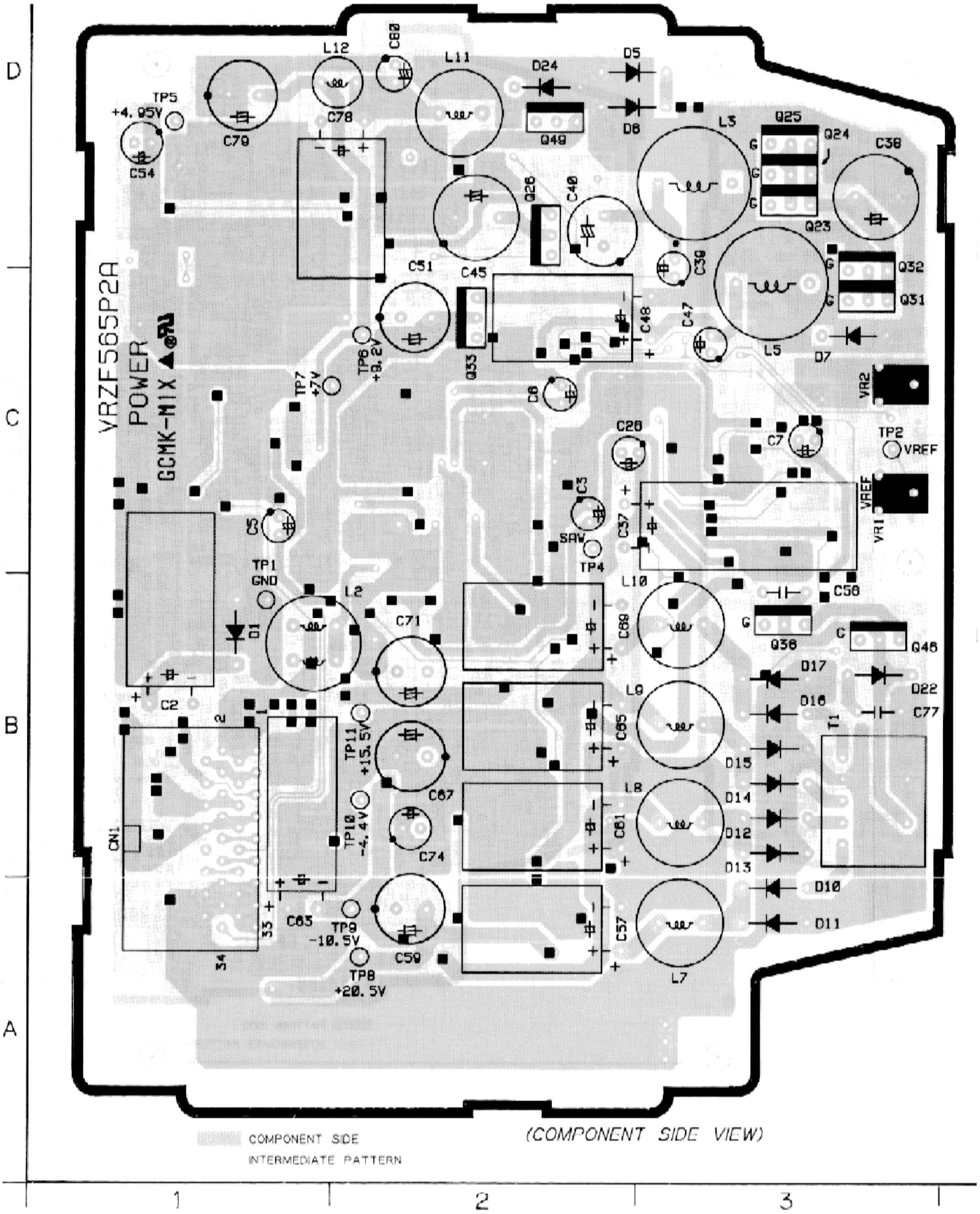
CONDUCTOR VIEW OF

<Index>

POWER BOARD

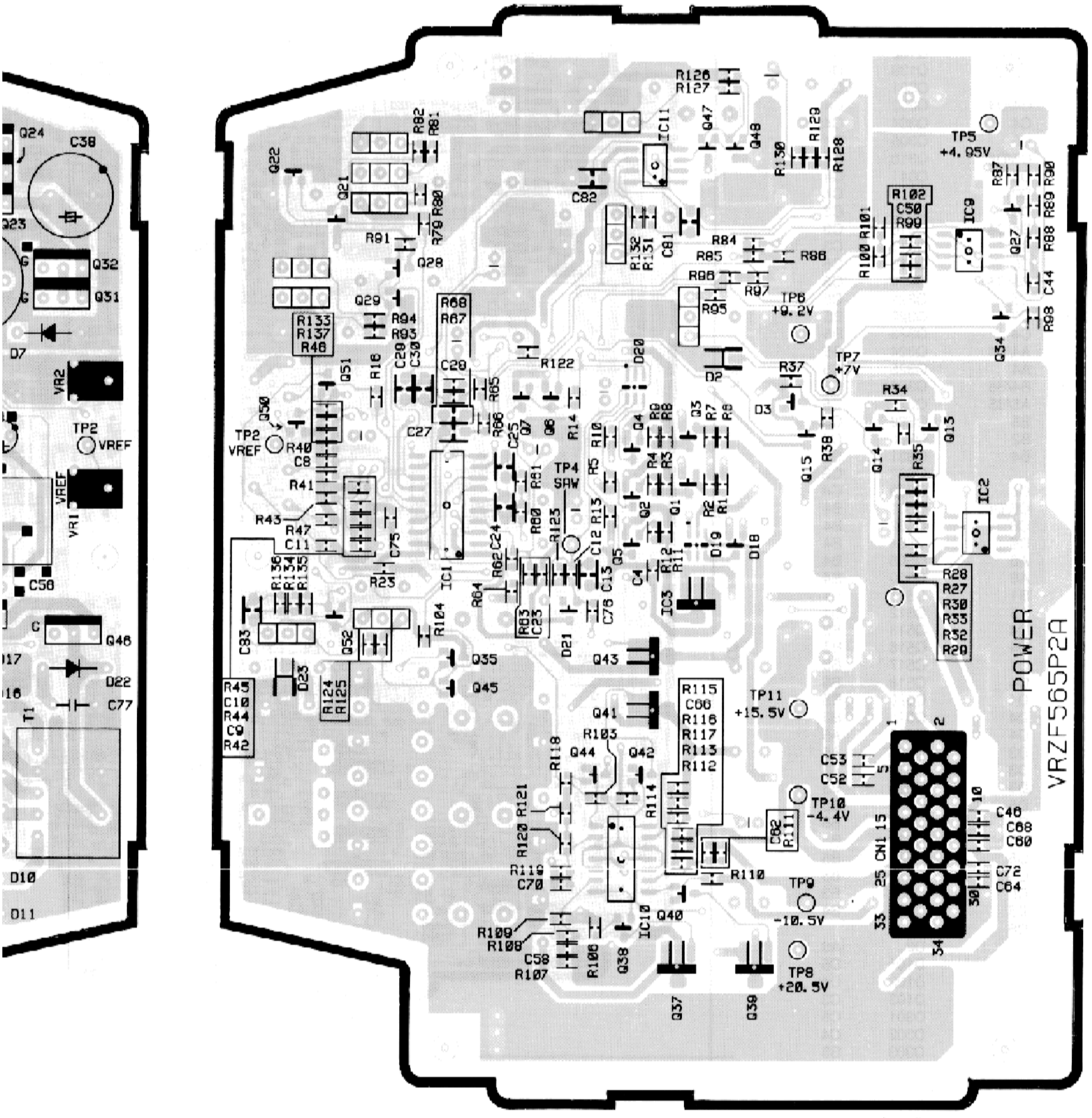
IC1	C5
IC2	C6
IC3	B5
IC9	D6
IC10	B5
IC11	D5
Q1	C5
Q2	C5
Q3	C5
Q4	C5
Q5	C5
Q6	C5
Q7	C5
Q13	C6
Q14	C6
Q15	C6
Q21	D4
Q22	D4
Q23	D3
Q24	D3
Q25	D3
Q26	D2
Q27	D6
Q28	D4
Q29	C4
Q31	C3
Q32	C3
Q33	C2
Q34	C6
Q35	B5
Q36	B3
Q37	A5
Q38	A5
Q39	A6
Q40	A5
Q41	B5
Q42	B5
Q43	B5
Q44	B5
Q45	B5
Q46	B3
Q47	D5
Q48	D5
Q49	D2
Q50	C4
Q51	C4
Q52	B4
D1	B1
D2	C5
D3	C6
D5	D2
D6	D2
D7	C3
D10	A3
D11	A3
D12	B3
D13	B3
D14	B3
D15	B3
D16	B3
D17	B3
D18	C5
D19	C5
D20	C5
D21	B5
D24	D2

POWER BOARD


D
C
B
A
1
2
3
VRZF565P2A
POWER
GCMK-M1X
TP5
+4.95V
C54
C79
L12
C78
C80
L11
D24
Q49
D5
D6
L3
Q25
Q24
C38
Q23
Q26
C40
C39
Q32
Q31
C51
C45
C48
C47
L5
D7
TP6
+9.2V
TP7
+7V
Q33
C6
VR2
C28
C7
TP2
VREF
C3
C37
VR1
SAW
TP4
D3
TP1
GND
D1
L2
C71
L10
C69
C58
Q36
Q46
D17
D22
D16
C77
T1
C2
CN1
TP11
+15.5V
C67
L9
C65
D15
D14
L8
C61
D12
D13
TP10
-4.4V
C74
D10
C63
TP9
-10.5V
C59
C57
L7
D11
TP8
+20.5V
33
34
COMPONENT SIDE
INTERMEDIATE PATTERN
(COMPONENT SIDE VIEW)

IEW OF POWER BOARD

POWER BOARD


Q24
C38
Q23
Q32
Q31
D7
VR2
TP2
VREF
VR1
C58
Q46
D22
C77
T1
D10
D11
Q22
Q21
R82
R81
R80
R79
R91
Q28
Q29
R94
R93
R133
R137
R46
R68
R67
Q51
R16
C29
C30
C28
R65
Q50
TP2
VREF
R40
C8
R41
R43
R47
C11
C27
R66
C25
Q7
Q6
R14
R122
D20
R10
Q4
R9
R8
Q3
R7
R6
R5
R4
R3
R81
TP4
SAW
R80
R123
R13
Q2
Q1
R2
R1
C24
R62
C12
C13
Q5
R12
R11
D19
D18
C4
IC3
R136
R134
R135
C75
R23
IC1
R64
R63
C23
C78
D21
C33
Q52
R104
Q35
Q45
Q43
D23
R45
C10
R44
C9
R42
R124
R125
Q41
R103
Q44
Q42
R118
R121
R120
R119
C70
R109
R108
C58
R107
R100
Q38
IC10
Q40
Q37
Q39
R115
C66
R116
R117
R113
R112
R114
C62
R111
R110
R126
R127
IC11
Q47
Q48
R129
R130
R128
C82
R132
R131
C81
R84
R85
R86
R98
R97
R95
TP6
+9.2V
D2
R37
TP7
+7V
D3
R38
Q15
R34
Q14
Q13
R35
IC2
R28
R27
R30
R33
R32
R29
TP5
+4.95V
R102
C50
R99
R101
R100
IC9
R87
R90
R89
R88
Q27
C44
R98
Q34
POWER
VRZF565P2A
TP11
+15.5V
C53
C52
CN1
1
2
5
10
15
25
30
33
34
C48
C68
C60
C72
C64
TP10
-4.4V
TP9
-10.5V
TP8
+20.5V

▨ PATTERN SIDE
INTERMEDIATE PATTERN

(PATTERN SIDE VIEW)

4 5 6

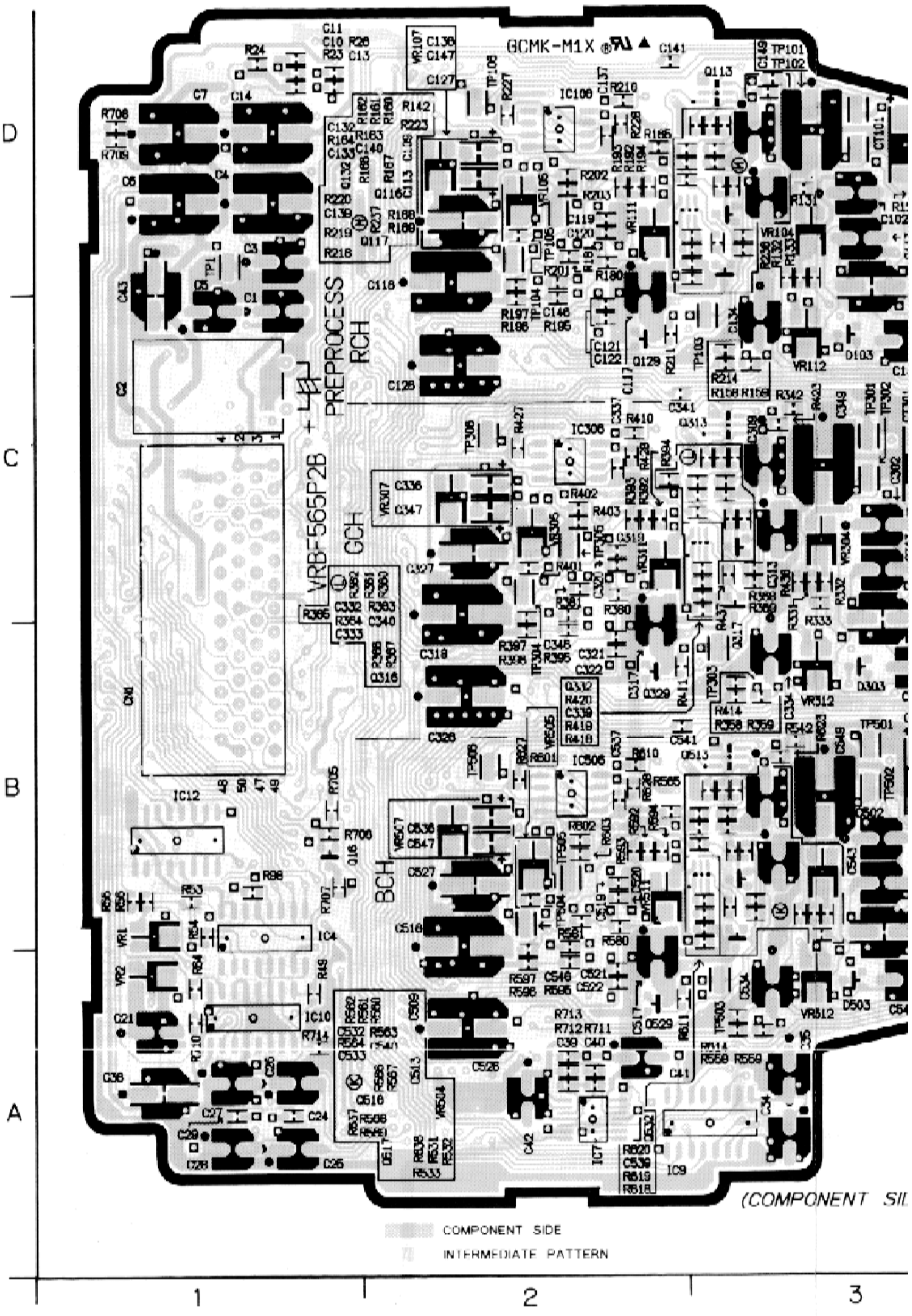
CONDUCTOR VIEW OF PREP

<Index>

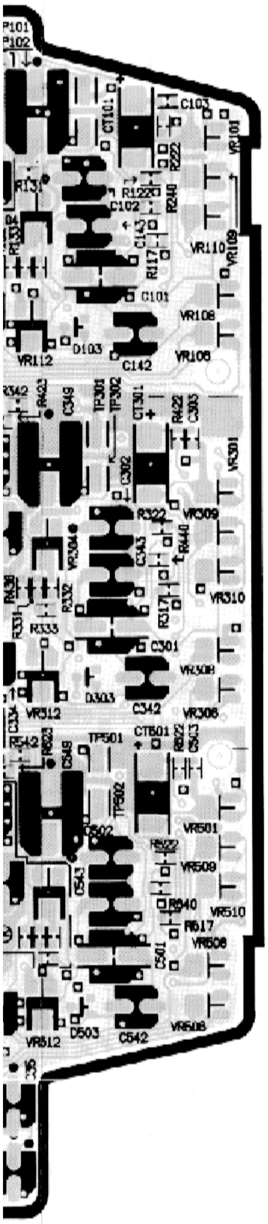
PREPROCESS BOARD

IC1	C6/D6
IC2	D6
IC7	A2
IC8	A6
IC9	A2/A3
IC10	A1
IC12	B1
IC101	C4/D4
IC102	C4
IC103	D5
IC104	C5/D5
IC105	D5
IC106	D2
IC107	D4
IC301	B4/C4
IC302	B4
IC303	C5
IC304	B5/C5
IC305	C5
IC306	C2
IC307	C4
IC501	A4/B4
IC502	A4
IC503	B4/B5
IC504	A5/B5
IC505	B5
IC506	B2
IC507	B4
Q1	C6
Q2	C6/D6
Q3	C6
Q4	D6
Q12	A6
Q13	A6
Q16	B1
Q17	A5
Q101	D4
Q102	D4
Q104	D4
Q105	D4
Q110	D4
Q111	D4
Q112	D4
Q113	D3
Q116	D3
Q117	D3
Q118	D5
Q120	D5
Q121	D5
Q122	C5
Q123	C5
Q124	C5
Q125	D5
Q126	D6
Q127	D5
Q128	D5/D6
Q130	D5
Q131	D5
Q132	D3
Q139	D4
Q301	C4
Q302	C4
Q304	C4
Q305	C4
Q310	C4
Q311	C4
Q312	C4
Q313	C3
Q316	C3
Q317	C3
Q318	C5
Q320	C5
Q321	C5
Q322	B5
Q323	B5
Q324	B5
Q325	C5
Q326	C5
Q327	C5
Q328	C5
Q330	C5
Q331	C5
Q332	C5
Q339	C4
Q501	B4
Q502	B4
Q504	B4
Q505	B4
Q510	B4
Q511	B4
Q512	B4
Q513	B3
Q516	B3
Q517	B3
Q518	B5
Q520	B5
Q521	B5
Q522	A5
Q523	A5
Q524	A5
Q525	B5
Q526	B5
Q527	B5
Q528	B5
Q530	B5
Q531	B5
Q532	B3
Q539	B4
D2	A6
D101	D5
D102	D4
D103	C3
D301	C5
D302	C4
D303	B3
D501	B5
D502	B4
D503	A3

PREPROCESS BOARD

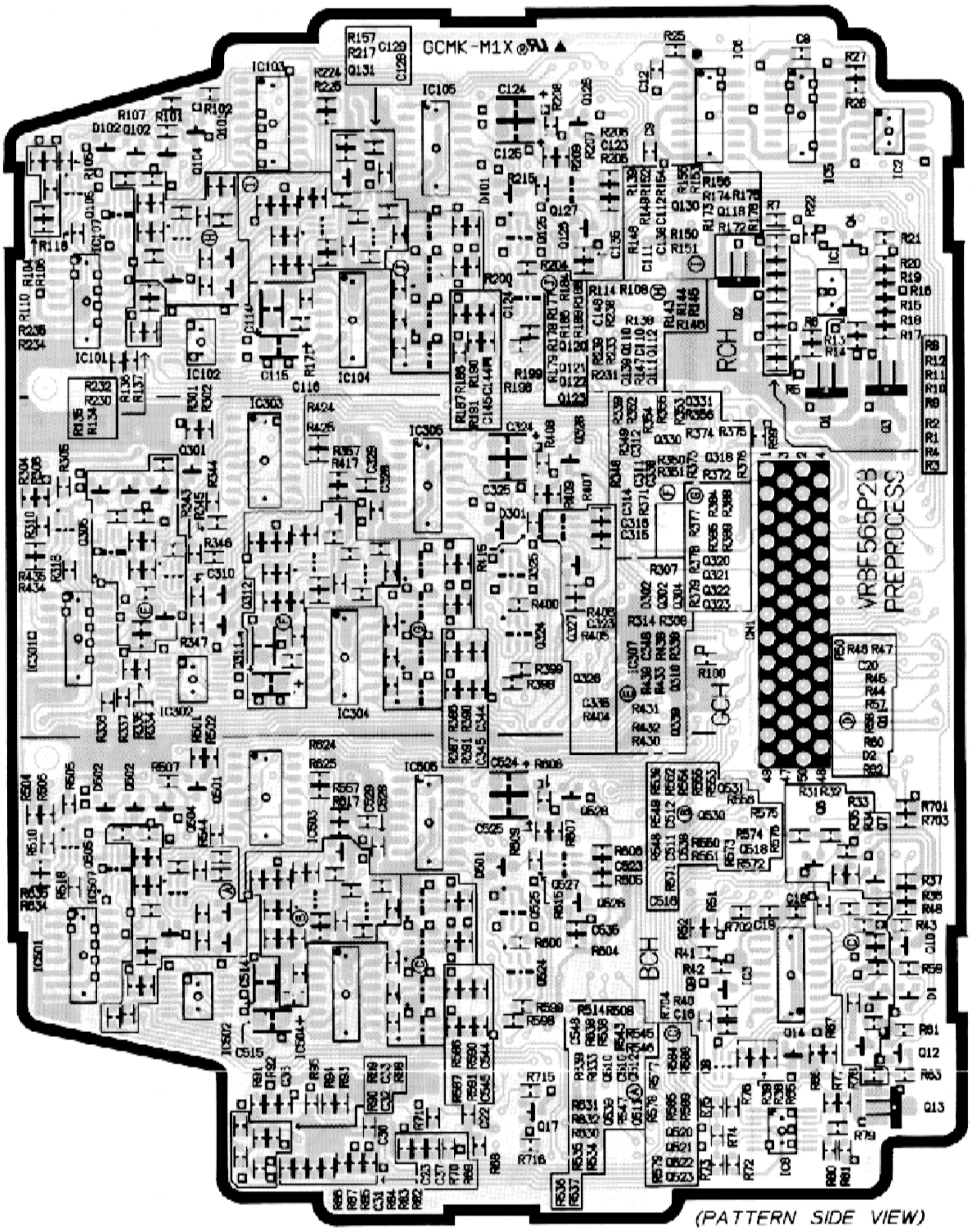

D
C
B
A
1
2
3
GCMK-M1X
PREPROCESS
RCH
GCH
BCH
VRBF565P2B
IC12
IC4
IC10
IC7
IC9
IC106
IC306
IC506
(COMPONENT SI
COMPONENT SIDE
INTERMEDIATE PATTERN

PREPROCESS BOARD


VR110
VR108
VR112
VR309
VR310
VR308
VR312
VR501
VR509
VR510
VR508
VR512

MPONENT SIDE VIEW)

PREPROCESS BOARD


GCMK-M1X
RCH
GCH
BCH
VRBF565P2B
PREPROCESS

(PATTERN SIDE VIEW)

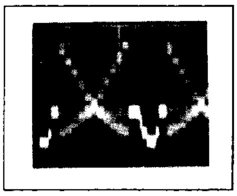
▨ PATTERN SIDE

▨ INTERMEDIATE PATTERN

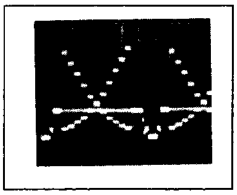
3 4 5 6

Preprocess Board

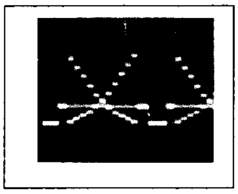
1. 10µsec/DIV 0.1V/DIV



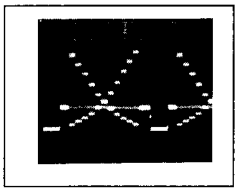
2. 10µsec/DIV 0.2V/DIV



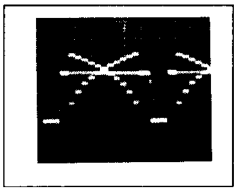
3. 10µsec/DIV 0.2V/DIV



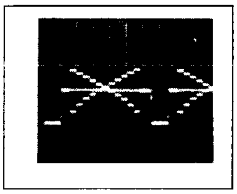
4. 10µsec/DIV 0.2V/DIV



5. 10µsec/DIV 2V/DIV



6. 10µsec/DIV 0.5V/DIV



<Index>

PREPROCESS BOARD

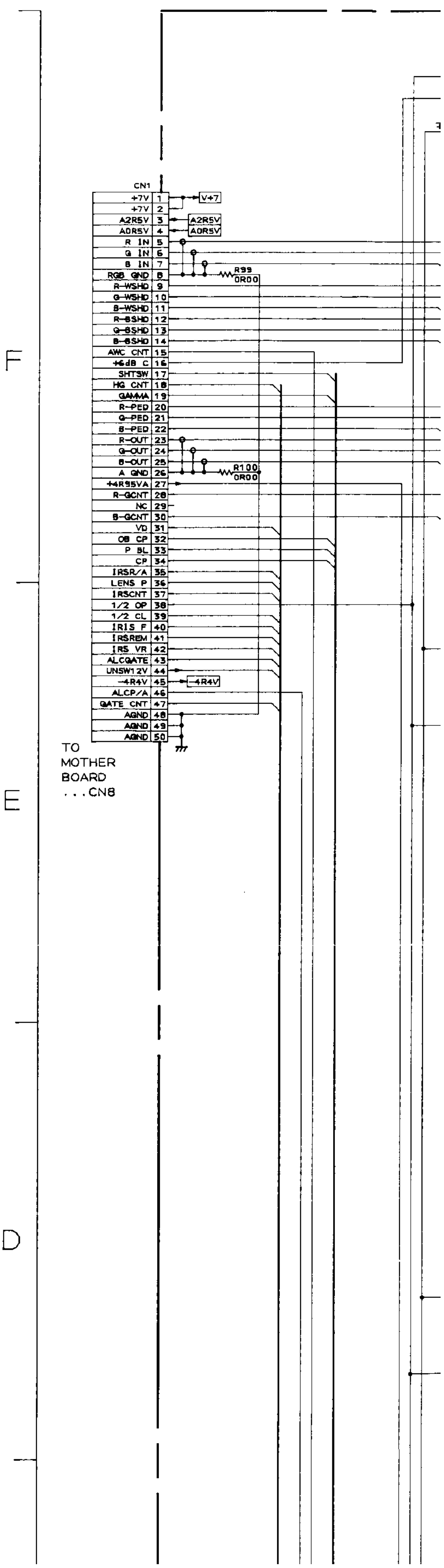
IC1	C6
IC2	D6
IC7	A2
IC8	A6
IC9	A3
IC10	A1
IC12	B1
IC101	C4
IC102	C4
IC103	D5
IC104	C5
IC105	D5
IC106	D2
IC107	D4
IC301	B4
IC302	B4
IC303	C5
IC304	B5
IC305	C5
IC306	C2
IC307	C4
IC501	B4
IC502	A4
IC503	B5
IC504	A5
IC505	B5
IC506	B2
IC507	B4
Q1	C6
Q2	C6
Q3	C6
Q4	D6
Q12	A6
Q13	A6
Q16	B1
Q17	A5
Q101	D4
Q102	D4
Q104	D4
Q105	D4
Q110	D4
Q111	C4
Q112	C4
Q113	D3
Q116	D3
Q117	C3
Q118	D5
Q120	D5
Q121	C5
Q122	C5
Q123	C5
Q124	C5
Q125	D5
Q126	D5
Q127	D5
Q128	D5
Q130	D5
Q132	D3
Q139	C4
Q301	C4
Q302	C4
Q304	C4
Q310	C4
Q311	C4
Q312	C4
Q313	C3
Q316	C3
Q317	C3
Q318	C5
Q320	C5
Q321	C5
Q322	B5
Q323	B5
Q324	B5
Q325	C5
Q326	C5
Q327	C5
Q328	C5
Q330	C5
Q331	C5
Q332	C3
Q339	C4
Q501	B4
Q502	B4
Q504	B4
Q505	B4
Q510	B4
Q511	B4
Q512	B4
Q513	B3
Q516	B3
Q517	B3
Q518	B5
Q520	B5
Q521	B5
Q522	A5
Q523	A5
Q524	A5
Q525	B5
Q526	B5
Q527	B5
Q528	B5
Q530	B5
Q531	B5
Q532	B3
Q539	B4
D2	A6
D101	D5
D102	D4
D103	C3
D301	C5
D302	C4
D303	B3
D501	B5
D502	B4
D503	A3

PREPROCESS BOARD

	IC1	IC2	IC7	IC8	IC9	IC10	IC12	IC101	IC102	IC103
Pin 1	3.8	2.5	0.4	1.2	6.7	-	0.5	0.6	2.5	-
2	2.5	2.5	0.5	1.2	0	8.0	0.5	-0.2	2.5	5.5
3	2.5	2.5	0.5	1.2	2.4	7.8	4.7	-0.7	2.5	3.9
4	7.0	-4.0	6.7	6.7	0.1	0	0.3	-0.6	6.7	4.5
5	0.5	4.7	0	1.8	0.1	0	1.1	-0.6	0.4	-4.0
6	0.5	2.1	1.7	1.8	0.1	0	0	0	0.4	5.5
7	-0.2	5.5	-3.5	1.8	1.6	0	0	-4.0	0.1	3.9
8	-2.7	6.7	-3.5	0.6	0	0	0	0	-0.1	4.5
9	-2.1		2.7	0.6	2.7	0	0.2	1.3	-0.1	5.5
10	-2.2		0	0.6	1.3	0	4.7	0	0.5	4.0
11	-4.4		-4.0	-4.0	2.7	0	4.7	1.3	-4.0	4.7
12	3.5		2.5	0.9	0.2	0	0.2	0.6	0	4.7
13	3.5		2.5	0.9	-	0	0.1	0.5	0	4.0
14	5.1		2.5	0.9	2.2	0	0.1	0.6	0	5.5
15					0	8.0	0.1	-0.1		-
16					-	12.0	4.7	6.7		-

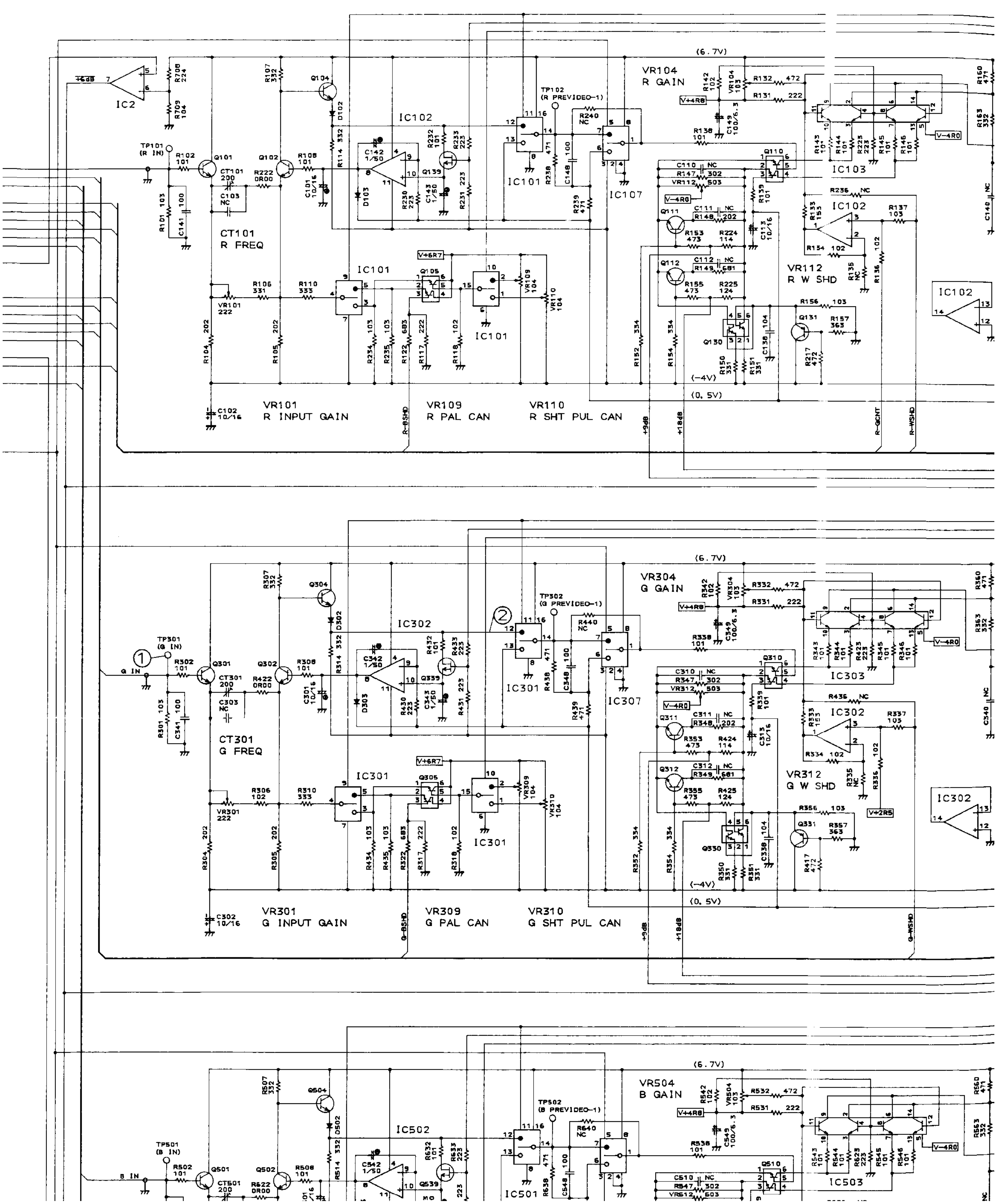
	IC104	IC105	IC106	IC107	IC301	IC302	IC303	IC304	IC305	IC306	IC307

PREPROCESS BO


F
E
D
CN1
+7V 1
+7V 2
A2R5V 3
A0R5V 4
R IN 5
G IN 6
B IN 7
RGB GND 8
R-WSHD 9
G-WSHD 10
B-WSHD 11
R-BSHD 12
G-BSHD 13
B-BSHD 14
AWC CNT 15
+6dB C 16
SHTSW 17
HG CNT 18
GAMMA 19
R-PED 20
G-PED 21
B-PED 22
R-OUT 23
G-OUT 24
B-OUT 25
A GND 26
+4R95VA 27
R-GCNT 28
NC 29
B-GCNT 30
VD 31
OB CP 32
P BL 33
CP 34
IRSR/A 35
LENS P 36
IRSCNT 37
1/2 OP 38
1/2 CL 39
IRIS F 40
IRSREM 41
IRS VR 42
ALCGATE 43
UNSW12V 44
-4R4V 45
ALCP/A 46
GATE CNT 47
AGND 48
AGND 49
AGND 50
V+7
A2R5V
A0R5V
R99
0R00
R100
0R00
-4R4V
TO
MOTHER
BOARD
...CN8

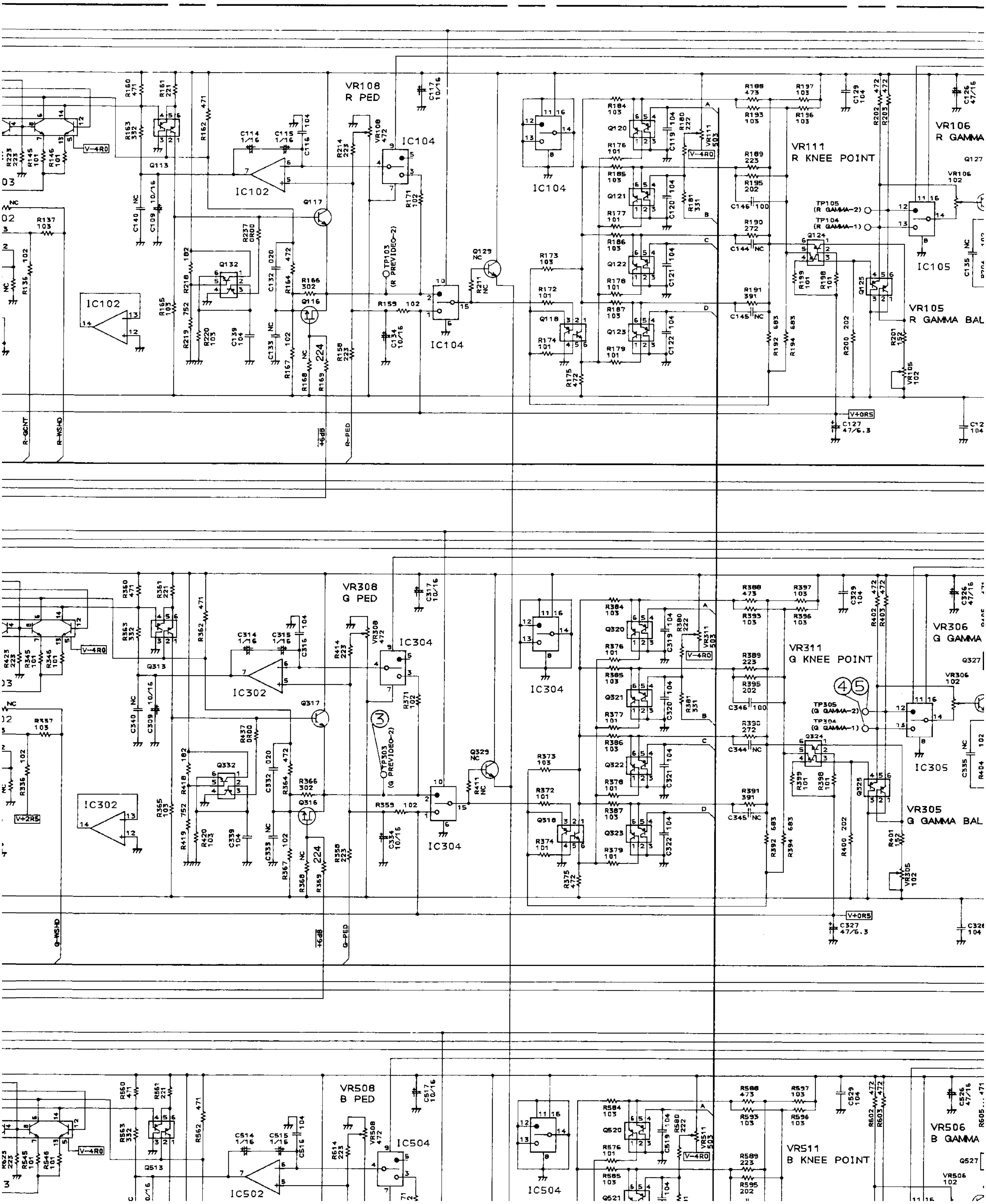
SCHEMATIC DIAGRAM OF PRE

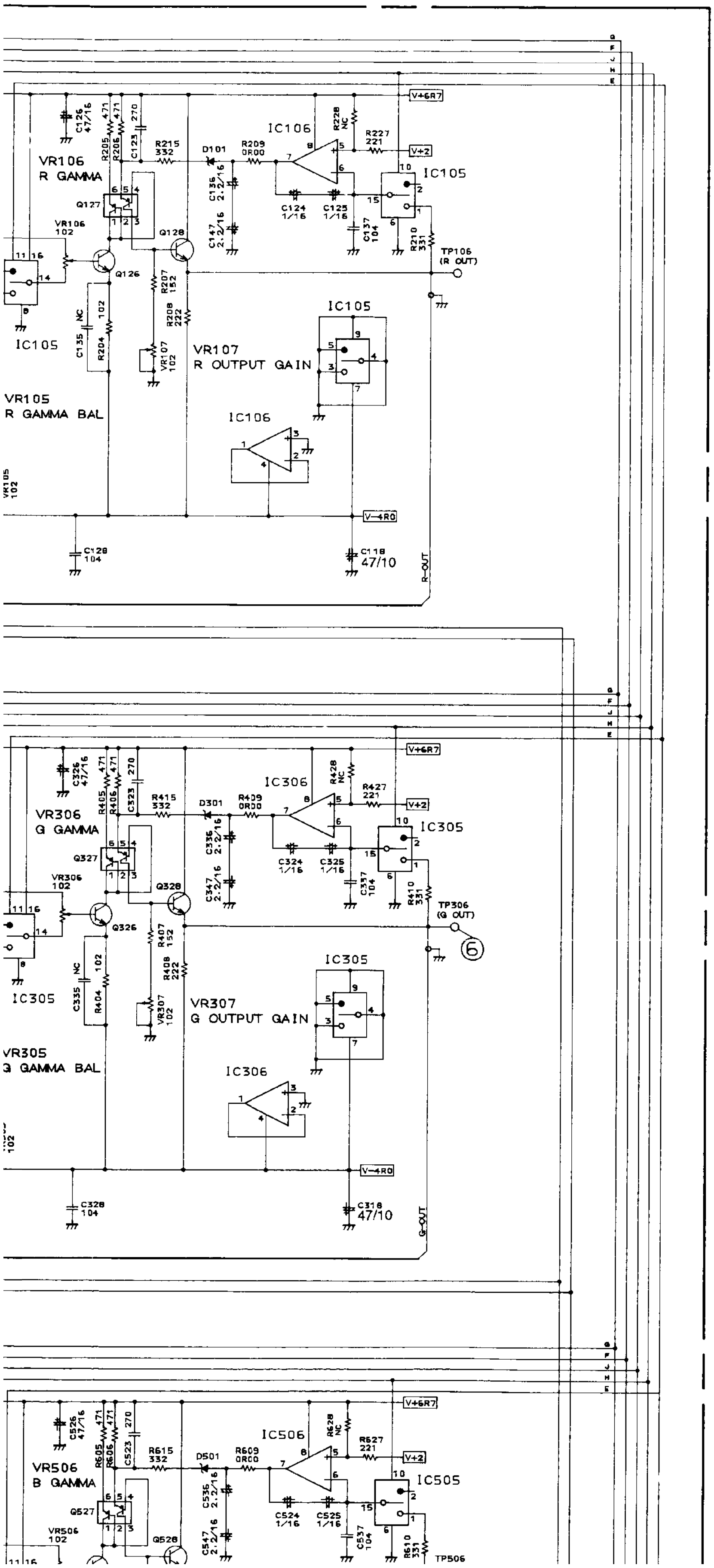
S BOARD



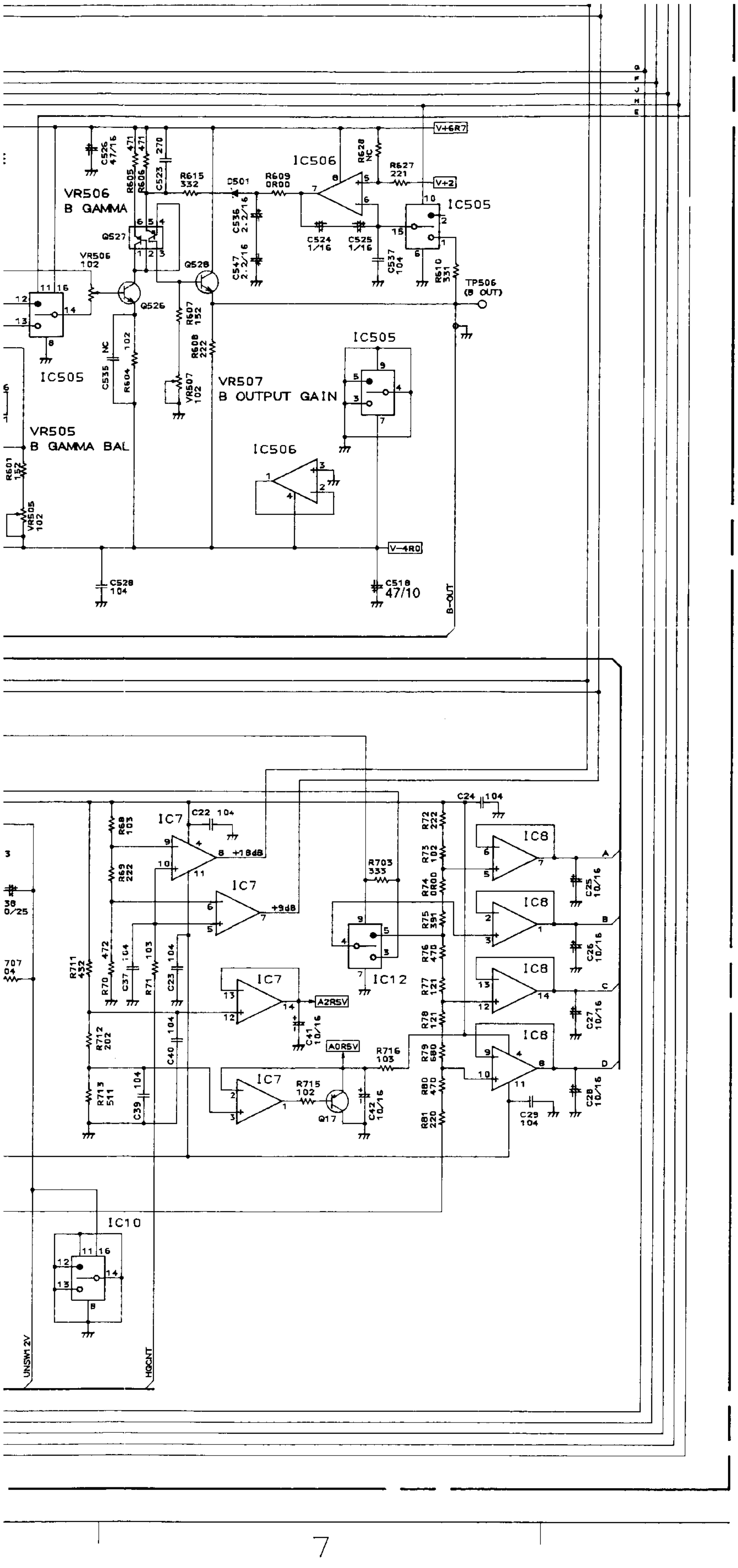
IC2
TP101 (R IN)
Q101
Q102
Q104
D102
D103
IC102
IC101
IC107
IC103
Q105
Q110
Q111
Q112
Q130
Q131
Q139
TP102 (R PREVIDEO-1)
(6.7V)
VR104 R GAIN
V+4R8
V-4R0
V+6R7
CT101 R FREQ
VR101 R INPUT GAIN
VR109 R PAL CAN
VR110 R SHT PUL CAN
VR112 R W SHD
(-4V)
(0.5V)
+9dB
+18dB
R-BSHD
R-GCNT
R-WSHD
TP301 (G IN)
G IN
①
②
Q301
Q302
Q304
D302
D303
IC302
IC301
IC307
IC303
Q305
Q310
Q311
Q312
Q330
Q331
Q339
TP302 (G PREVIDEO-1)
VR304 G GAIN
CT301 G FREQ
VR301 G INPUT GAIN
VR309 G PAL CAN
VR310 G SHT PUL CAN
VR312 G W SHD
V+2R5
G-BSHD
G-WSHD
TP501 (B IN)
B IN
Q501
Q502
Q504
D502
IC502
IC501
IC503
Q510
Q539
CT501
TP502 (B PREVIDEO-1)
VR504 B GAIN

OF PREPROCESS BOARD


VR108
R PED
IC102
IC104
IC105
VR106
R GAMMA
VR111
R KNEE POINT
VR105
R GAMMA BAL
TP103 (R PREVIDEO-2)
TP105 (R GAMMA-2)
TP104 (R GAMMA-1)
V-4R0
V+0R5
R-GCNT
R-WSHD
+6dB
R-PED
VR308
G PED
IC302
IC304
IC305
VR306
G GAMMA
VR311
G KNEE POINT
VR305
G GAMMA BAL
TP303 (G PREVIDEO-2)
TP305 (G GAMMA-2)
TP304 (G GAMMA-1)
V+2R5
G-WSHD
G-PED
③
④⑤
VR508
B PED
IC502
IC504
VR506
B GAMMA
VR511
B KNEE POINT



IC106
IC105
VR106
R GAMMA
Q127
Q128
Q126
VR106 102
C126 47/16
R205 471
R206 471
C123 270
R215 332
D101
R209 0R00
R228 NC
R227 221
C136 2.2/16
C147 2.2/16
C124 1/16
C125 1/16
C137 104
R210 331
TP106 (R OUT)
R207 152
R208 222
C135 NC
R204 102
VR107 102
VR107
R OUTPUT GAIN
VR105
R GAMMA BAL
VR105 102
C128 104
C118 47/10
V+6R7
V+2
V-4R0
R-OUT
IC306
IC305
VR306
G GAMMA
Q327
Q328
Q326
VR306 102
C326 47/16
R405 471
R406 471
C323 270
R415 332
D301
R409 0R00
R428 NC
R427 221
C336 2.2/16
C347 2.2/16
C324 1/16
C325 1/16
C337 104
R410 331
TP306 (G OUT)
⑥
R407 152
R408 222
C335 NC
R404 102
VR307 102
VR307
G OUTPUT GAIN
VR305
G GAMMA BAL
C328 104
C318 47/10
G-OUT
IC506
IC505
VR506
B GAMMA
Q527
Q528
VR506 102
C526 47/16
R605 471
R606 471
C523 270
R615 332
D501
R609 0R00
R628 NC
R627 221
C536 2.2/16
C547 2.2/16
C524 1/16
C525 1/16
C537 104
R610 331
TP506
G
F
J
H
E



V+6R7
IC506
R628 NC
R627 221
V+2
IC505
R615 332
D501
R609 0R00
C526 47/16
R605 471
R606 471
C523 270
VR506
B GAMMA
Q527
VR506 102
Q528
C536 2.2/16
C547 2.2/16
C524 1/16
C525 1/16
C537 104
R610 331
TP506 (B OUT)
Q526
IC505
C535 NC
R604 102
R607 152
R608 222
VR507 102
VR507
B OUTPUT GAIN
VR505
B GAMMA BAL
R601 152
VR505 102
IC506
V-4R0
C528 104
C518 47/10
B-OUT
IC7
C22 104
R68 103
R69 222
+18dB
+9dB
C24 104
R72 222
R73 102
R74 0R00
R75 391
R76 470
R77 121
R78 121
R79 680
R80 470
R81 220
IC8
C25 10/16
C26 10/16
C27 10/16
C28 10/16
C29 104
A
B
C
D
R703 333
IC12
R711 452
R70 472
C37 104
R71 103
C23 104
A2R5V
C41 10/16
A0R5V
R716 103
R712 202
C40 104
R713 511
C39 104
R715 102
Q17
C42 10/16
R707 104
IC10
UNSW1 2V
HGCNT
7

natic diagram should be read as follows:

9)

9)

<Example>

For Resistor:

330 → 33×10^0 = 33 Ω

561 → 56×10^1 = 560 Ω

123 → 12×10^3 = 12k Ω

0R00 = 0 Ω

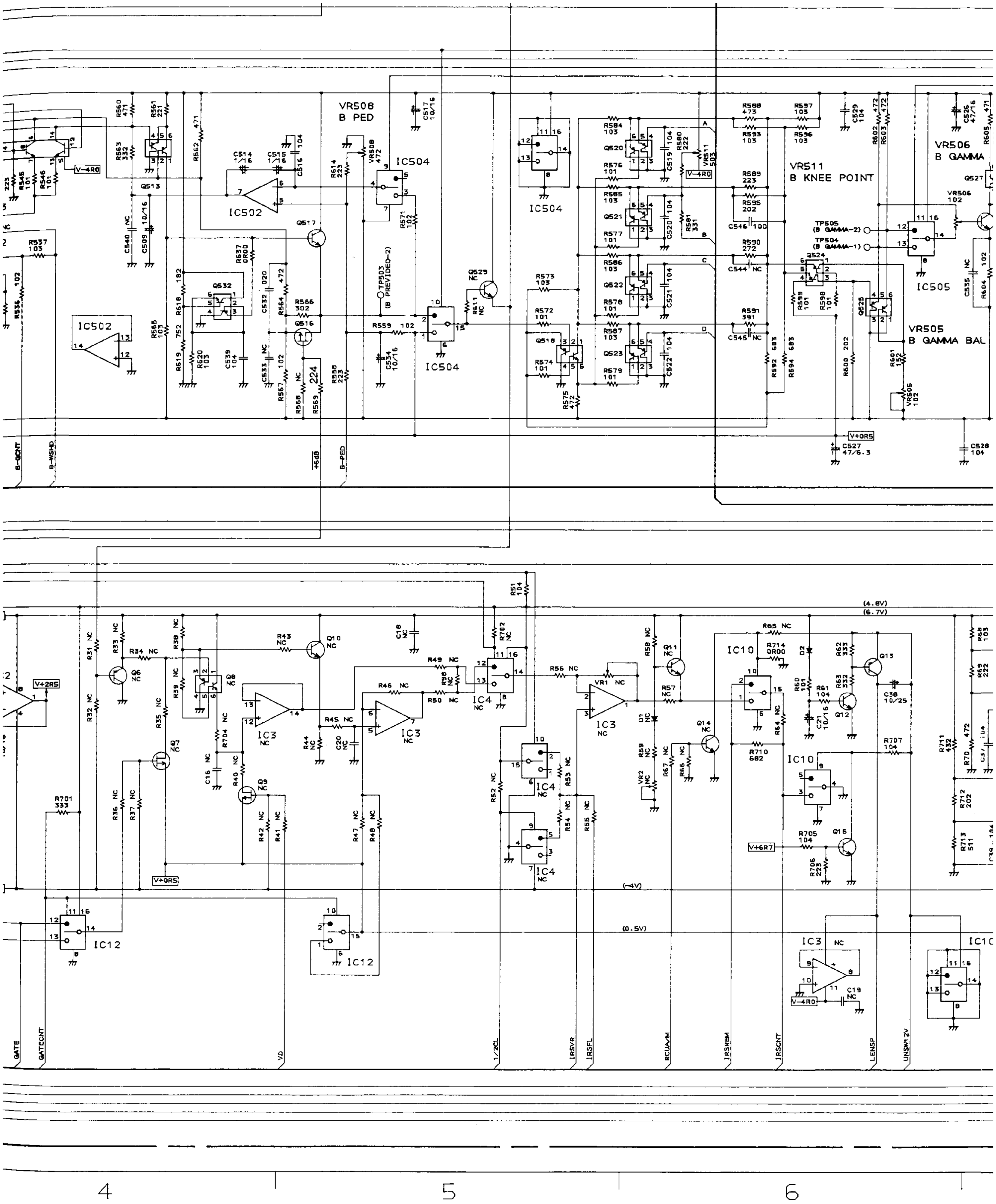
For Capacitor:

820 → 82×10^0 = 82 pF

102 → 10×10^2 = 1000 pF = 0.001 µF

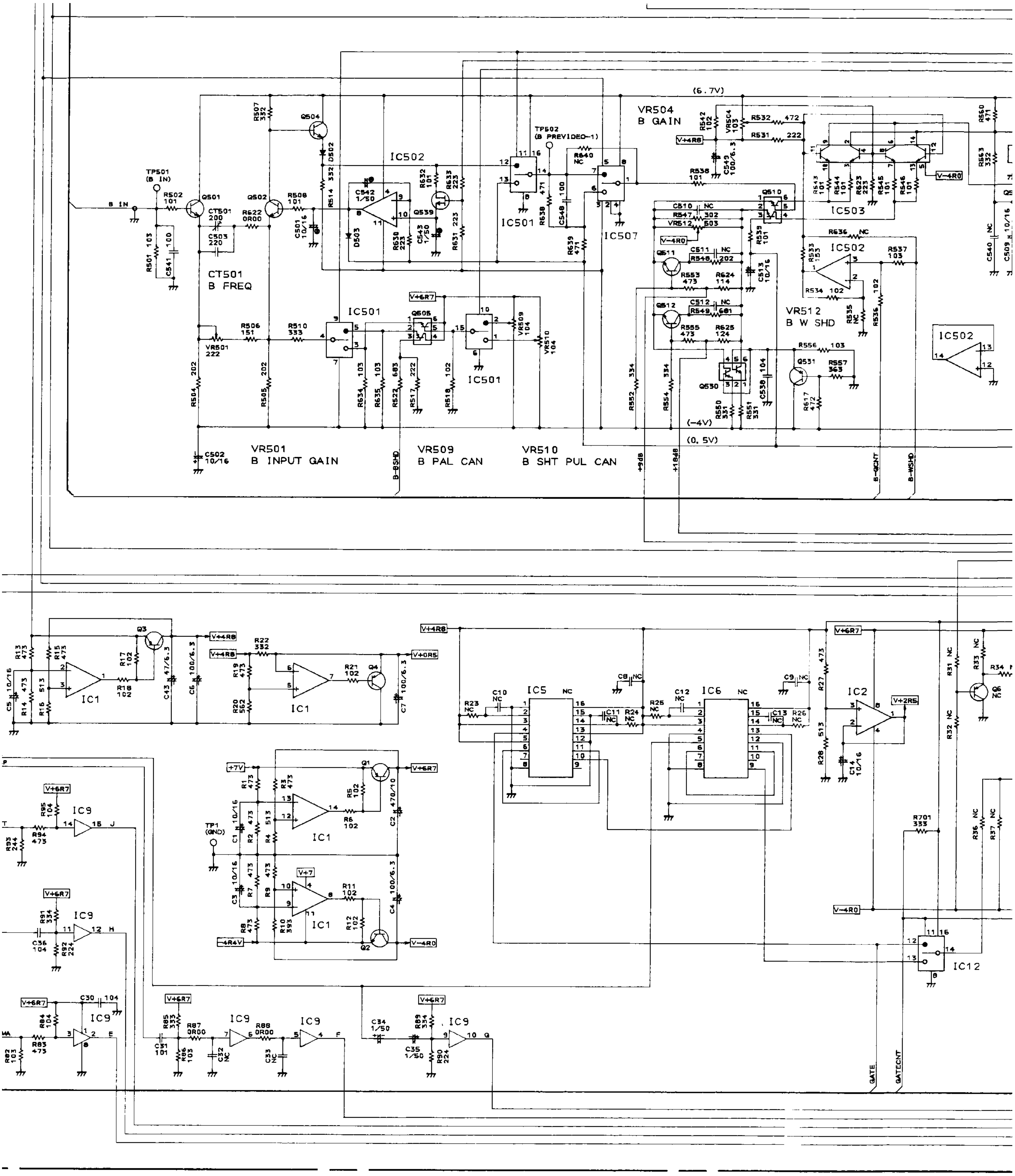
104 → 10×10^4 = 100000 pF = 0.1 µF

The suffix attached to capacitance indicates a type of capacitor.


VR508
B PED
IC504
IC502
Q513
Q516
Q517
Q529
Q532
TP503
(B PREVIDEO-2)
IC504
Q520
Q521
Q522
Q523
Q518
VR511
B KNEE POINT
VR506
B GAMMA
Q527
TP505
(B GAMMA-2)
TP504
(B GAMMA-1)
Q524
Q525
IC505
VR505
B GAMMA BAL
V-4R0
V+0R5
B-GCNT
B-WSHD
+6dB
B-PED
V+2R5
Q6
Q8
Q9
Q10
Q7
IC3
IC4
IC12
IC10
Q11
Q13
Q12
Q14
Q16
VR1
VR2
V+0R5
V+6R7
(4.8V)
(6.7V)
(-4V)
(0.5V)
GATE
GATECNT
VD
1/2CL
IRSVR
IRSFL
RCUA/M
IRSREM
IRSCNT
LENSP
UNSW12V
4
5
6

Note: The value indicated in the schematic diagram sh

Multiplier (0 - 5)
2nd. Significant Digit (0 - 9)
1st. Siginificant Digit (1 - 9)


(6.7V)
VR504
B GAIN
TP501
(B IN)
B IN
TP502
(B PREVIDEO-1)
IC502
IC501
IC507
IC503
CT501
B FREQ
Q501
Q502
Q504
Q539
Q605
Q510
Q511
Q512
Q530
Q531
VR512
B W SHD
VR501
B INPUT GAIN
VR509
B PAL CAN
VR510
B SHT PUL CAN
(-4V)
(0. 5V)
V+4R8
V-4R0
V+6R7
B-BSHD
+9dB
+18dB
B-GCNT
B-WSHD
IC1
IC2
IC5
IC6
IC9
IC12
Q1
Q2
Q3
Q4
Q6
TP1
(GND)
V+0R5
V+2R5
+7V
V+7
-4R4V
GATE
GATECNT
2
3
4

23	Q524	Q525	Q527	Q530	Q532
	-2.6	-4.0	5.3	-3.6	6.7
8	0.5	-2.6	5.3	-3.6	4.8
	-2.6	-4.0	1.9	-2.9	1.6
5	0.5	-2.6	5.3	-0.1	0
3	1.2	-1.9	6.0	2.9	5.4
3	1.2	-1.6	6.0	-0.1	4.8

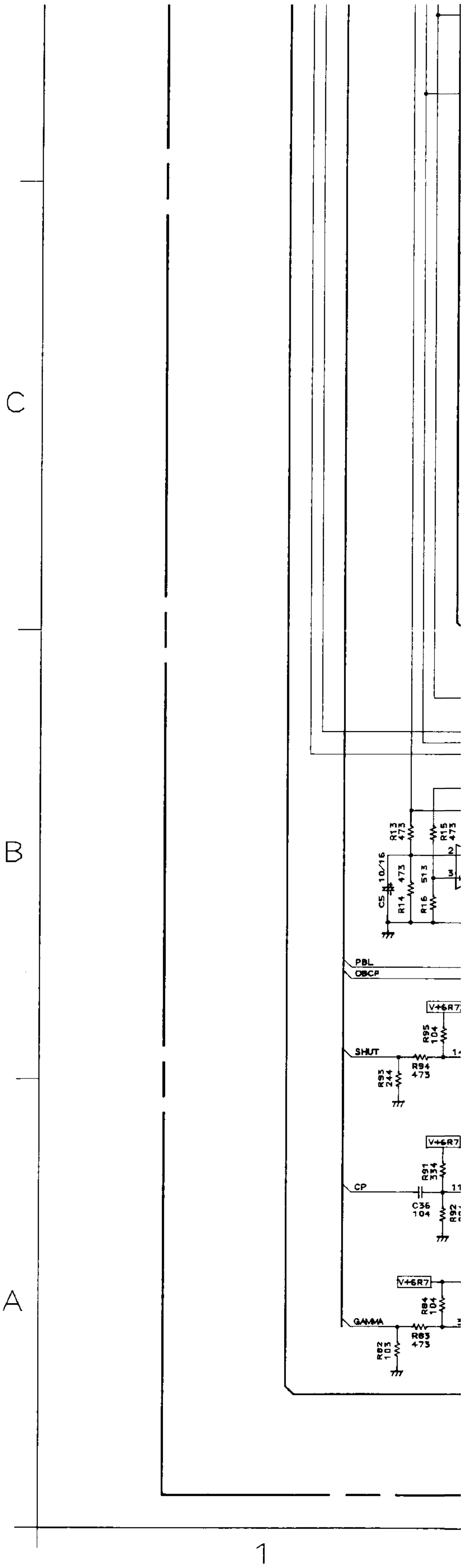
7	-0.2	5.5	-3.5	1.8	1.6	0	0	-4.0	0.1	3.9
8	-2.7	6.7	-3.5	0.6	0	0	0	0	-0.1	4.5
9	-2.1		2.7	0.6	2.7	0	0.2	1.3	-0.1	5.5
10	-2.2		0	0.6	1.3	0	4.7	0	0.5	4.0
11	-4.4		-4.0	-4.0	2.7	0	4.7	1.3	-4.0	4.7
12	3.5		2.5	0.9	0.2	0	0.2	0.6	0	4.7
13	3.5		2.5	0.9	-	0	0.1	0.5	0	4.0
14	5.1		2.5	0.9	2.2	0	0.1	0.6	0	5.5
15					0	8.0	0.1	-0.1		-
16					-	12.0	4.7	6.7		-

	IC104	IC105	IC106	IC107	IC301	IC302	IC303	IC304	IC305	IC306	IC307
Pin 1	0.5	1.0	0	0.5	0.6	2.5	-	0.5	1.0	0	0.5
2	0.6	0.5	0	0	-0.2	2.5	5.5	0.6	0.5	0	0
3	0.6	0	0	-4.0	-0.7	2.5	3.9	0.6	0	0	-4.0
4	0.4	0	-4.0	0	-0.6	6.7	4.5	0.4	0	-4.0	0
5	0.4	0	0.5	4.7	-0.6	0.4	-4.0	0.4	0	0.5	4.7
6	0	0	0.5	0.5	0	0.4	5.5	0	0	0.5	0.5
7	0	-4.0	0.5	0.6	-4.0	0.1	3.9	0	-4.0	0.5	0.6
8	0.2	0	6.7	6.7	0	0.1	4.5	0.2	0	6.7	6.7
9	1.3	0			1.3	-0.1	5.5	1.3	0		
10	0	0.2			0	0.5	4.0	0	0.2		
11	0	0			1.3	-4.0	4.7	0	0		
12	0	-2.0			0.6	0	4.7	0	-2.0		
13	0	-2.0			0.5	0	4.0	0	-2.0		
14	0	-2.0			0.6	0	5.5	0	-2.0		
15	0.6	0.5			-0.1		-	0.6	0.5		
16	6.7	6.7			6.7		-	6.7	6.7		

	IC501	IC502	IC503	IC504	IC505	IC506	IC507
Pin 1	0.6	2.5	-	0.5	1.0	0	0.5
2	-0.2	2.5	5.5	0.6	0.5	0	0
3	-0.7	2.5	3.9	0.6	0	0	-4.0
4	-0.6	6.7	4.5	0.4	0	-4.0	0
5	-0.6	0.4	-4.0	0.4	0	0.5	4.7
6	0	0.4	5.5	0	0	0.5	0.5
7	4.0	0.1	3.9	0	-4.0	0.5	0.6
8	0	-0.1	4.5	0.2	0	6.7	6.7
9	1.3	0.1	5.5	1.3	0		
10	0	0.5	4.0	0	0.2		
11	1.3	-4.0	4.7	0	0		
12	0.6	0	4.7	0	-2.0		
13	0.5	0	4.0	0	-2.0		
14	0.6	0	5.5	0	-2.0		
15	-0.1			0.6	0.5		
16	6.7		-	6.7	6.7		

	B	C	E
Q1	6.3	6.7	7.0
2	-3.7	-4.0	-4.4
3	4.3	4.7	4.9
4	-0.1	0	0.5
11	6.7	6.2	-
12	0.6	0.1	0
13	11.3	12.0	12.0
16	0.6	0	0
17	-0.2	0	0.5
101	0.1	6.7	-0.6
102	-0.1	1.9	-0.8
104	1.9	6.7	1.2
111	0.5	-0.1	-0.1
112	0.5	-0.1	-0.1
116	(G) -3.9	(D) 0.9	(S) 1.7
117	1.5	6.7	0.9
126	-2.6	5.3	-1.9
128	1.2	6.7	1.9
131	-3.5	-4.0	-2.9
139	(G) -2.0	0.5	0.5

	B	C	E
Q301	0.1	6.7	-0.6
302	-0.1	1.9	-0.8
304	1.9	6.7	1.2
311	0.5	-0.1	-0.1
312	0.5	-0.1	-0.1
316	(G) -3.9	(D) 0.9	(S) 1.7
317	1.5	6.7	0.9
326	-2.6	5.3	-1.9
328	1.2	6.7	1.9
331	-3.5	-4.0	-2.9
339	(G) -2.0	0.5	0.5
501	0.1	6.7	-0.6
502	-0.1	1.9	-0.8
504	1.9	6.7	1.2
511	0.5	-0.1	-0.1
512	0.5	-0.1	-0.1
516	(G) -3.9	(D) 0.9	(S) 1.7
517	1.5	6.7	0.9
526	-2.6	5.3	-1.9
528	1.2	6.7	1.9
531	-3.5	-4.0	-2.9
539	(G) -2.0	0.5	0.5

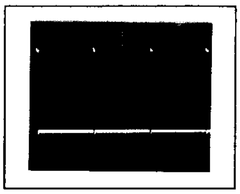


	Q105	Q110	Q113	Q118	Q120	Q121	Q122	Q123	Q124	Q125	Q127	Q130	Q132	Q305	Q310	Q313	Q318	Q320	Q321	Q322	Q323	Q324	Q325
Pin 1	-0.7	-0.1	1.5	6.7	0	0	0	0	-2.6	-4.0	5.3	-3.6	6.7	-0.7	-0.1	1.5	6.7	0	0	0	0	-2.6	-4.0
2	-0.6	-0.1	5.4	0.8	0.8	0.8	0.8	0.8	0.5	-2.6	5.3	-3.6	4.8	-0.6	-0.1	5.4	0.8	0.8	0.8	0.8	0.8	0.5	-2.6
3	0	0.5	0	1.4	0	0	0	0	-2.6	-4.0	1.9	-2.9	1.6	0	0.5	0	1.4	0	0	0	0	-2.6	-4.0
4	6.7	3.8	5.4	0	1.8	1.1	0.9	0.6	0.5	-2.6	5.3	-0.1	0	6.7	3.8	5.4	0	1.8	1.1	0.9	0.6	0.5	-2.6
5	-0.1	0.5	6.1	1.4	1.5	1.4	1.4	1.3	1.2	1.9	6.0	-2.9	5.4	0.1	0.5	6.1	1.4	1.5	1.4	1.4	1.3	1.2	-1.9
6	6.7	3.8	6.1	0.8	1.5	1.4	1.4	1.3	1.2	1.6	6.0	-0.1	4.8	6.7	3.8	6.1	0.8	1.5	1.4	1.4	1.3	1.2	-1.6

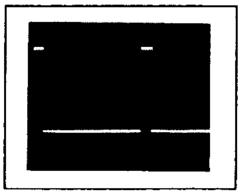
	Q327	Q330	Q332	Q505	Q510	Q513	Q518	Q520	Q521	Q522	Q523	Q524	Q525
Pin 1	5.3	-3.6	6.7	-0.7	-0.1	1.5	6.7	0	0	0	0	-2.6	-4.0
2	5.3	-3.6	4.8	0.6	-0.1	5.4	0.8	0.8	0.8	0.8	0.8	0.5	-2.6
3	1.9	-2.9	1.6	0	0.5	0	1.4	0	0	0	0	-2.6	-4.0
4	5.3	-0.1	0	6.7	3.8	5.4	0	1.8	1.1	0.9	0.6	0.5	-2.6
5	6.0	-2.9	5.4	-0.1	0.5	6.1	1.4	1.5	1.4	1.4	1.3	1.2	-1.9
6	6.0	-0.1	4.8	6.7	3.8	6.1	0.8	1.5	1.4	1.4	1.3	1.2	-1.6

MOTHER BOARD

1. 5m/DIV, 1V/DIV



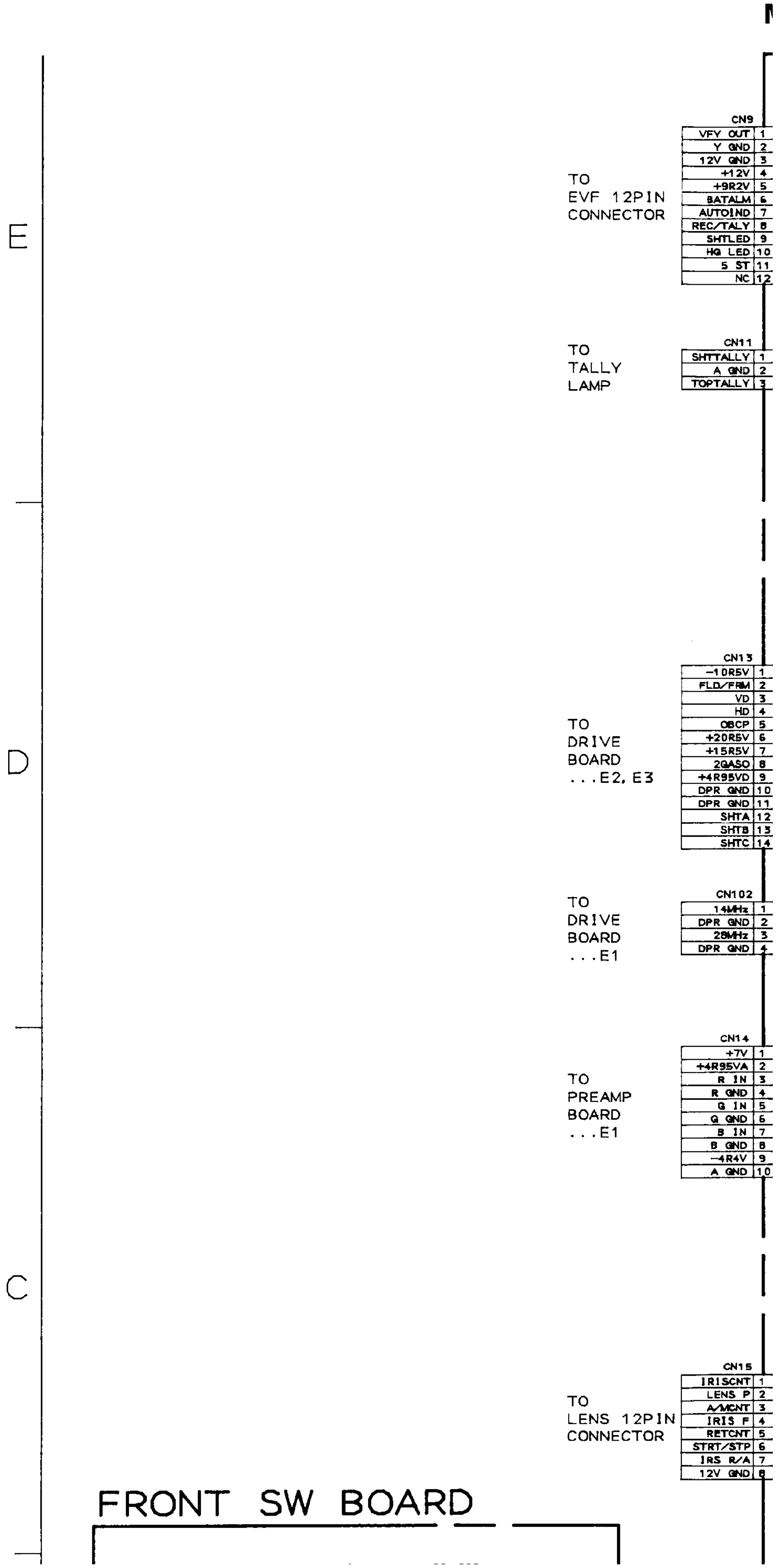
2. 10μsec/DIV, 1V/DIV



<Index>

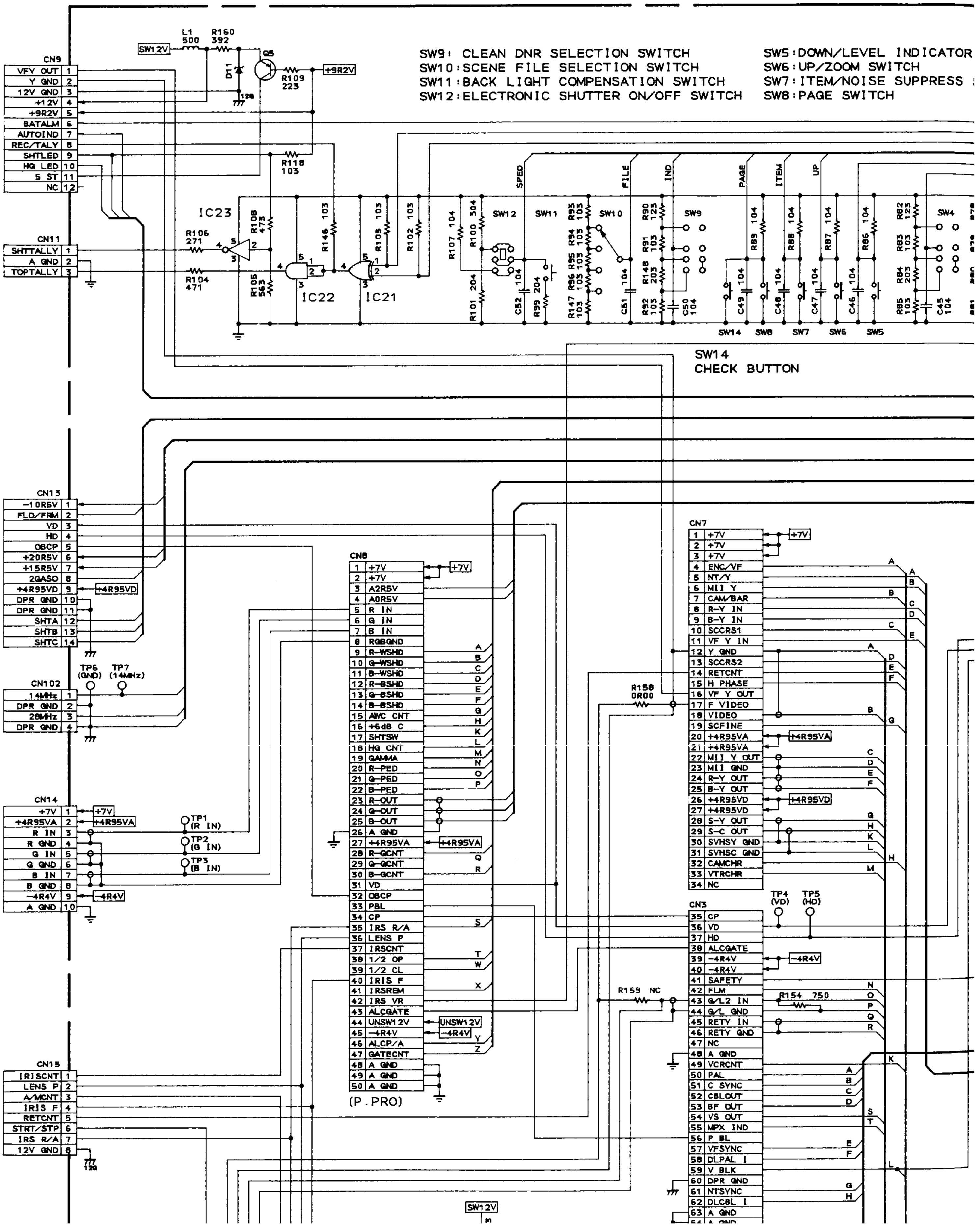
MOTHER BOARD

IC1	A3
IC3	A3, A4
IC4	A4
IC5	A5
IC6	A4
IC7	A4
IC8	A5
IC9	A5
IC10	A6
IC11	A6
IC12	A6
IC13	A6, A7
IC14	A7
IC15	B3
IC16	B4, B5
IC17	B6, B7
IC18	D6
IC19	E5
IC20	E5
IC21	E3
IC22	E2
IC23	E2
IC24	E7
IC25	B5
IC32	D7
Q1	A5
Q2	A6
Q3	B3
Q4	B3
Q5	E2
Q6	B3
Q7	E7
Q8	D7
Q9	D7
D1	A3
D3	A3
D6	B3


E
D
C
TO
EVF 12PIN
CONNECTOR
CN9
VFY OUT 1
Y GND 2
12V GND 3
+12V 4
+9R2V 5
BATALM 6
AUTOIND 7
REC/TALY 8
SHTLED 9
HQ LED 10
5 ST 11
NC 12
TO
TALLY
LAMP
CN11
SHTTALLY 1
A GND 2
TOPTALLY 3
TO
DRIVE
BOARD
...E2, E3
CN13
−10R5V 1
FLD/FRM 2
VD 3
HD 4
OBCP 5
+20R5V 6
+15R5V 7
2QASO 8
+4R95VD 9
DPR GND 10
DPR GND 11
SHTA 12
SHTB 13
SHTC 14
TO
DRIVE
BOARD
...E1
CN102
14MHz 1
DPR GND 2
28MHz 3
DPR GND 4
TO
PREAMP
BOARD
...E1
CN14
+7V 1
+4R95VA 2
R IN 3
R GND 4
G IN 5
G GND 6
B IN 7
B GND 8
−4R4V 9
A GND 10
TO
LENS 12PIN
CONNECTOR
CN15
IRISCNT 1
LENS P 2
A/MCNT 3
IRIS F 4
RETCNT 5
STRT/STP 6
IRS R/A 7
12V GND 8
FRONT SW BOARD

SCHEMATIC DIAGRAM

MOTHER BOARD



SW9: CLEAN DNR SELECTION SWITCH
SW10: SCENE FILE SELECTION SWITCH
SW11: BACK LIGHT COMPENSATION SWITCH
SW12: ELECTRONIC SHUTTER ON/OFF SWITCH

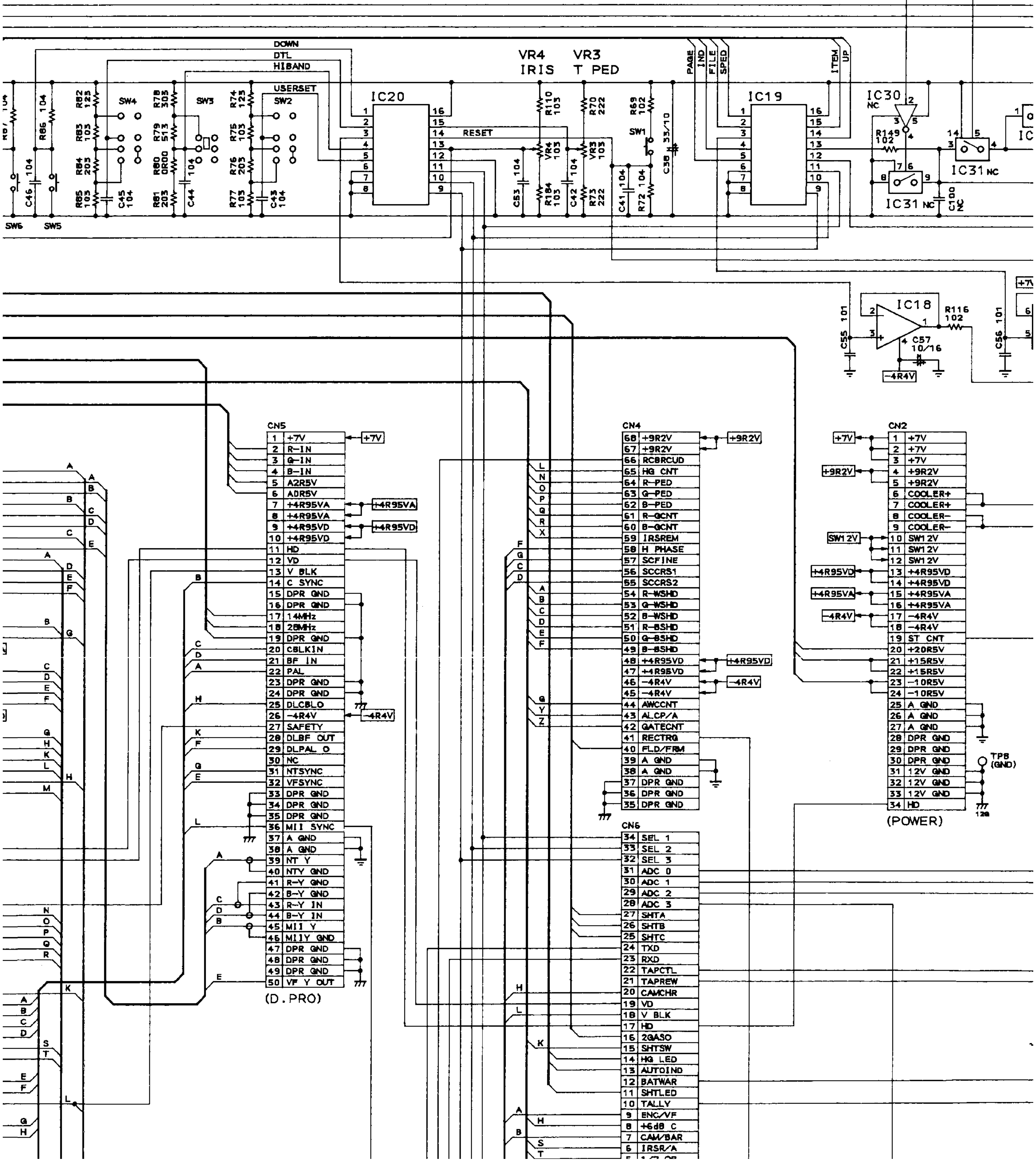
SW5: DOWN/LEVEL INDICATOR
SW6: UP/ZOOM SWITCH
SW7: ITEM/NOISE SUPPRESS
SW8: PAGE SWITCH

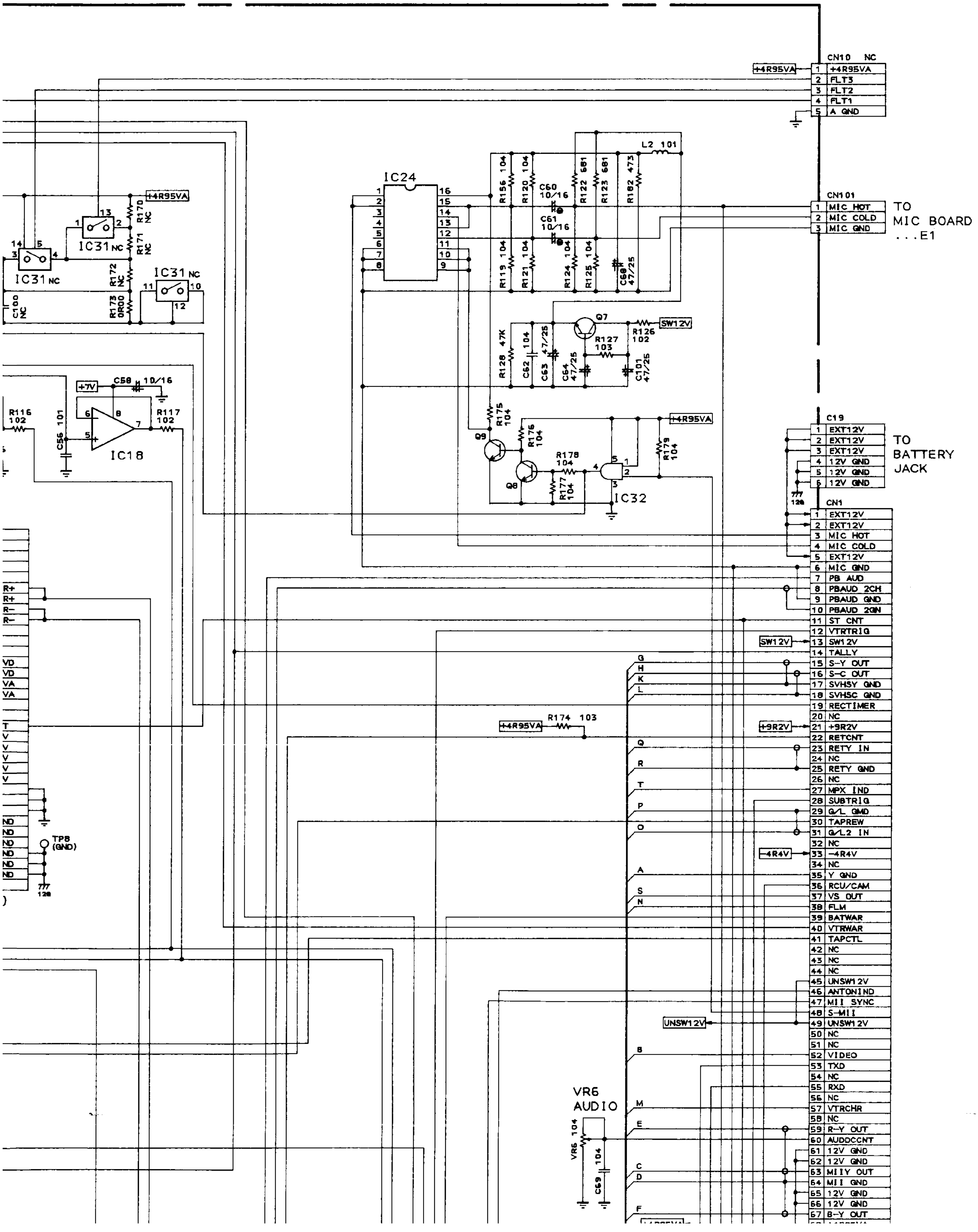
CN9
VFY OUT 1
Y GND 2
12V GND 3
+12V 4
+9R2V 5
BATALM 6
AUTOIND 7
REC/TALY 8
SHTLED 9
HG LED 10
5 ST 11
NC 12
SW12V
L1 500
R160 392
D11
Q5
R109 223
+9R2V
R118 103
CN11
SHTTALLY 1
A GND 2
TOPTALLY 3
IC23
R106 271
R104 471
R108 473
R105 563
IC22
R146 103
IC21
R103 103
R102 103
SPEED
R107 104
R100 504
R101 204
SW12
SW11
C52 104
R99 204
R93 103
R94 103
R95 103
R96 103
R147 103
SW10
FILE
C51 104
IND
R90 123
R91 103
R148 203
R92 103
C50 104
SW9
PAGE
ITEM
UP
R89 104
R88 104
R87 104
R86 104
C49 104
C48 104
C47 104
C46 104
R82 123
R83 103
R84 203
R85 103
C45 104
SW4
SW14
SW8
SW7
SW6
SW5
SW14
CHECK BUTTON
CN13
−10R5V 1
FLD/FRM 2
VD 3
HD 4
OBCP 5
+20R5V 6
+15R5V 7
2GASO 8
+4R95VD 9
DPR GND 10
DPR GND 11
SHTA 12
SHTB 13
SHTC 14
+4R95VD
TP6 (GND)
TP7 (14MHz)
CN102
14MHz 1
DPR GND 2
28MHz 3
DPR GND 4
CN14
+7V 1
+4R95VA 2
R IN 3
R GND 4
G IN 5
G GND 6
B IN 7
B GND 8
−4R4V 9
A GND 10
+7V
+4R95VA
−4R4V
TP1 (R IN)
TP2 (G IN)
TP3 (B IN)
CN15
IRISCNT 1
LENS P 2
A/MCNT 3
IRIS F 4
RETCNT 5
STRT/STP 6
IRS R/A 7
12V GND 8
CN8
1 +7V
2 +7V
3 A2R5V
4 A0R5V
5 R IN
6 G IN
7 B IN
8 RGBGND
9 R-WSHD
10 G-WSHD
11 B-WSHD
12 R-BSHD
13 G-BSHD
14 B-BSHD
15 AWC CNT
16 +6dB C
17 SHTSW
18 HG CNT
19 GAMMA
20 R-PED
21 G-PED
22 B-PED
23 R-OUT
24 G-OUT
25 B-OUT
26 A GND
27 +4R95VA
28 R-GCNT
29 G-GCNT
30 B-GCNT
31 VD
32 OBCP
33 PBL
34 CP
35 IRS R/A
36 LENS P
37 IRSCNT
38 1/2 OP
39 1/2 CL
40 IRIS F
41 IRSREM
42 IRS VR
43 ALCGATE
44 UNSW12V
45 −4R4V
46 ALCP/A
47 GATECNT
48 A GND
49 A GND
50 A GND
(P.PRO)
+7V
+4R95VA
UNSW12V
−4R4V
CN7
1 +7V
2 +7V
3 +7V
4 ENC/VF
5 NT/Y
6 MII Y
7 CAM/BAR
8 R-Y IN
9 B-Y IN
10 SCCRS1
11 VF Y IN
12 Y GND
13 SCCRS2
14 RETCNT
15 H PHASE
16 VF Y OUT
17 F VIDEO
18 VIDEO
19 SCFINE
20 +4R95VA
21 +4R95VA
22 MII Y OUT
23 MII GND
24 R-Y OUT
25 B-Y OUT
26 +4R95VD
27 +4R95VD
28 S-Y OUT
29 S-C OUT
30 SVHSY GND
31 SVHSC GND
32 CAMCHR
33 VTRCHR
34 NC
+7V
+4R95VA
+4R95VD
R158 0R00
TP4 (VD)
TP5 (HD)
CN3
35 CP
36 VD
37 HD
38 ALCGATE
39 −4R4V
40 −4R4V
41 SAFETY
42 FLM
43 G/L2 IN
44 G/L GND
45 RETY IN
46 RETY GND
47 NC
48 A GND
49 VCRCNT
50 PAL
51 C SYNC
52 CBLOUT
53 BF OUT
54 VS OUT
55 MPX IND
56 P BL
57 VFSYNC
58 DLPAL I
59 V BLK
60 DPR GND
61 NTSYNC
62 DLCBL I
63 A GND
64 A GND
−4R4V
R159 NC
R154 750
SW12V

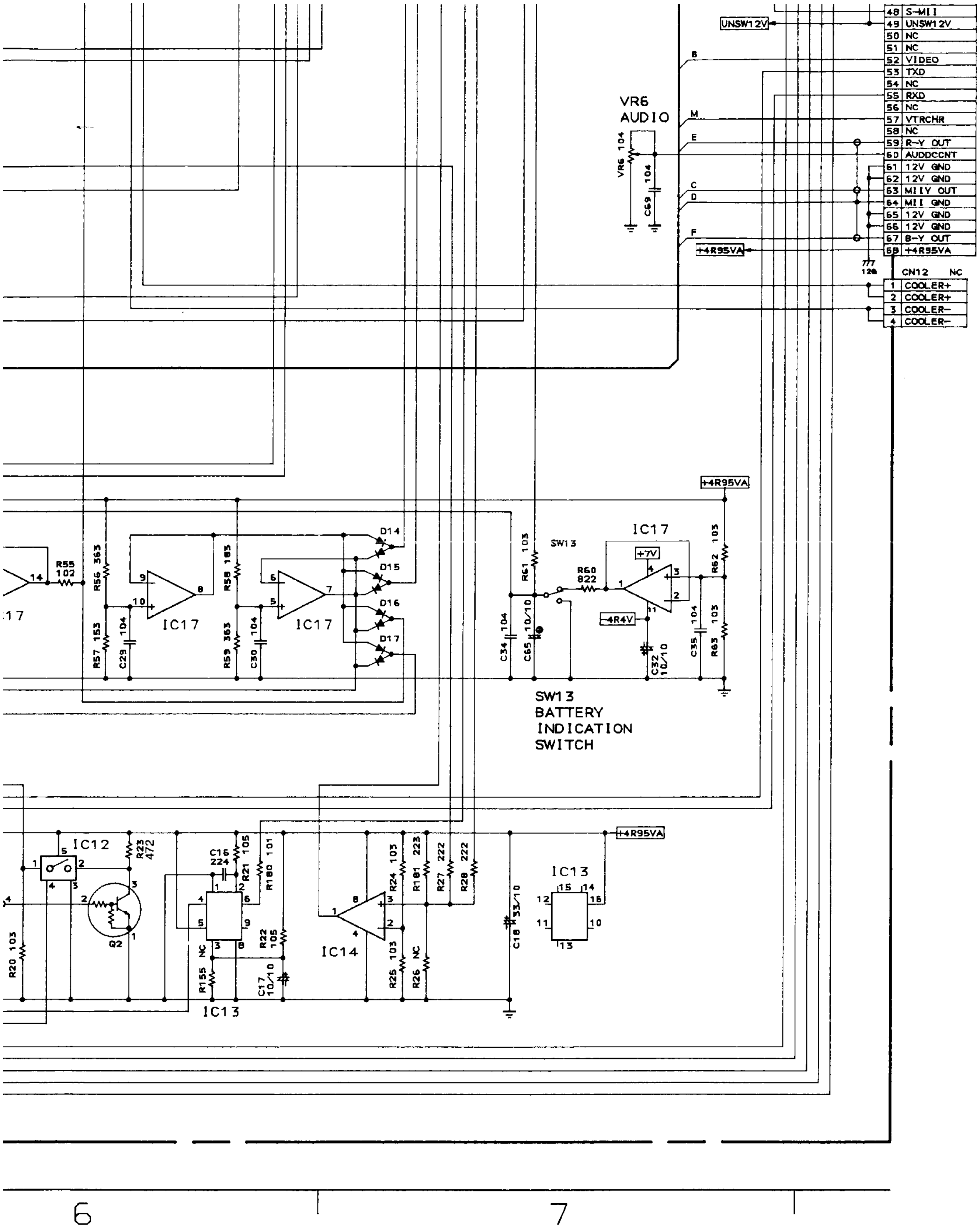
IAGRAM OF MOTHER BOARD

/LEVEL INDICATOR SWITCH
ZOOM SWITCH
/NOISE SUPPRESS SWITCH
E SWITCH

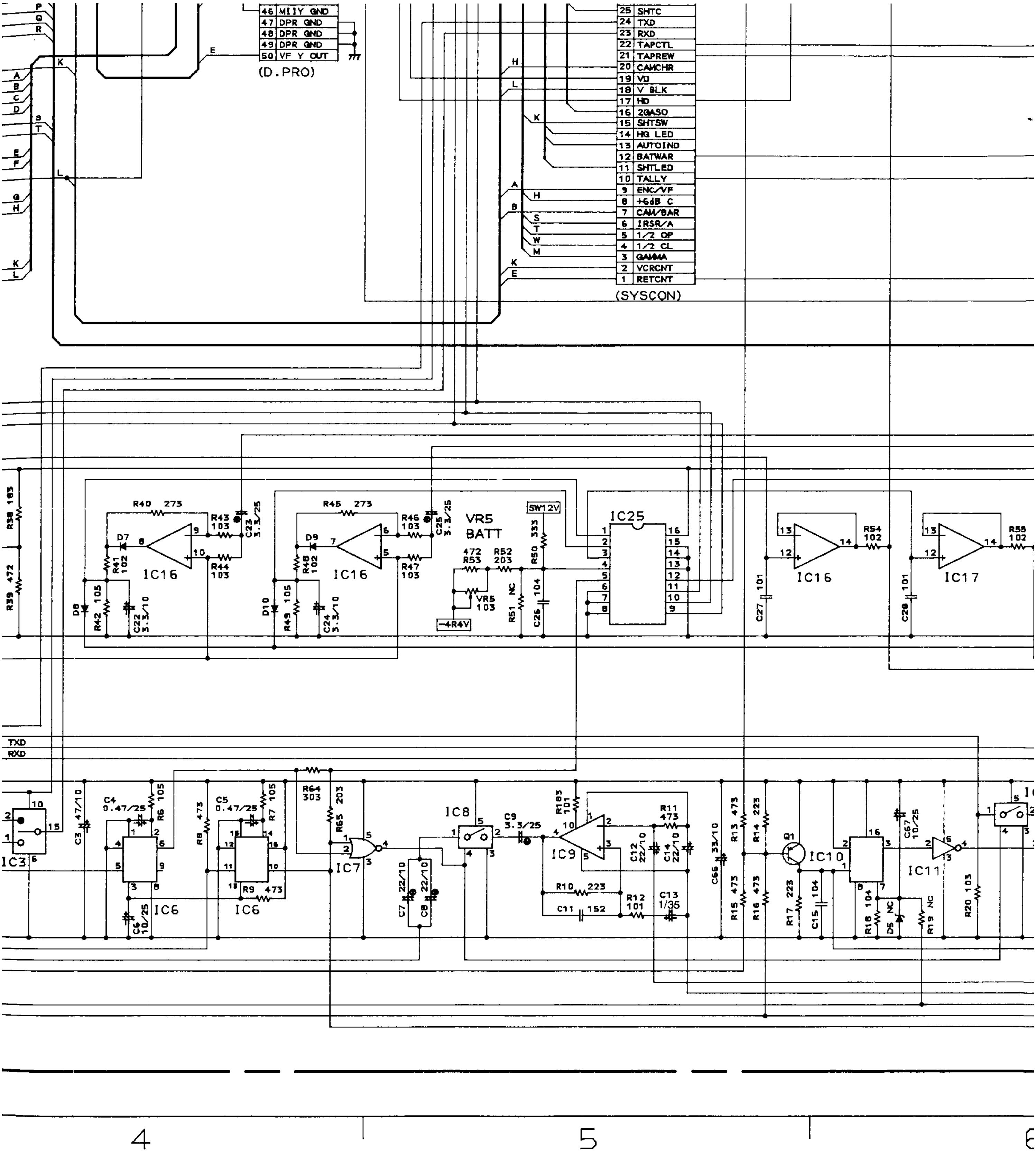
SW1:RECORDING TIME RESET BUTTON SWITCH
SW2:USER SET SWITCH
SW3:HIGH LIGHT CHROMA SWITCH
SW4:DETAIL LEVEL SELECTION SWITCH

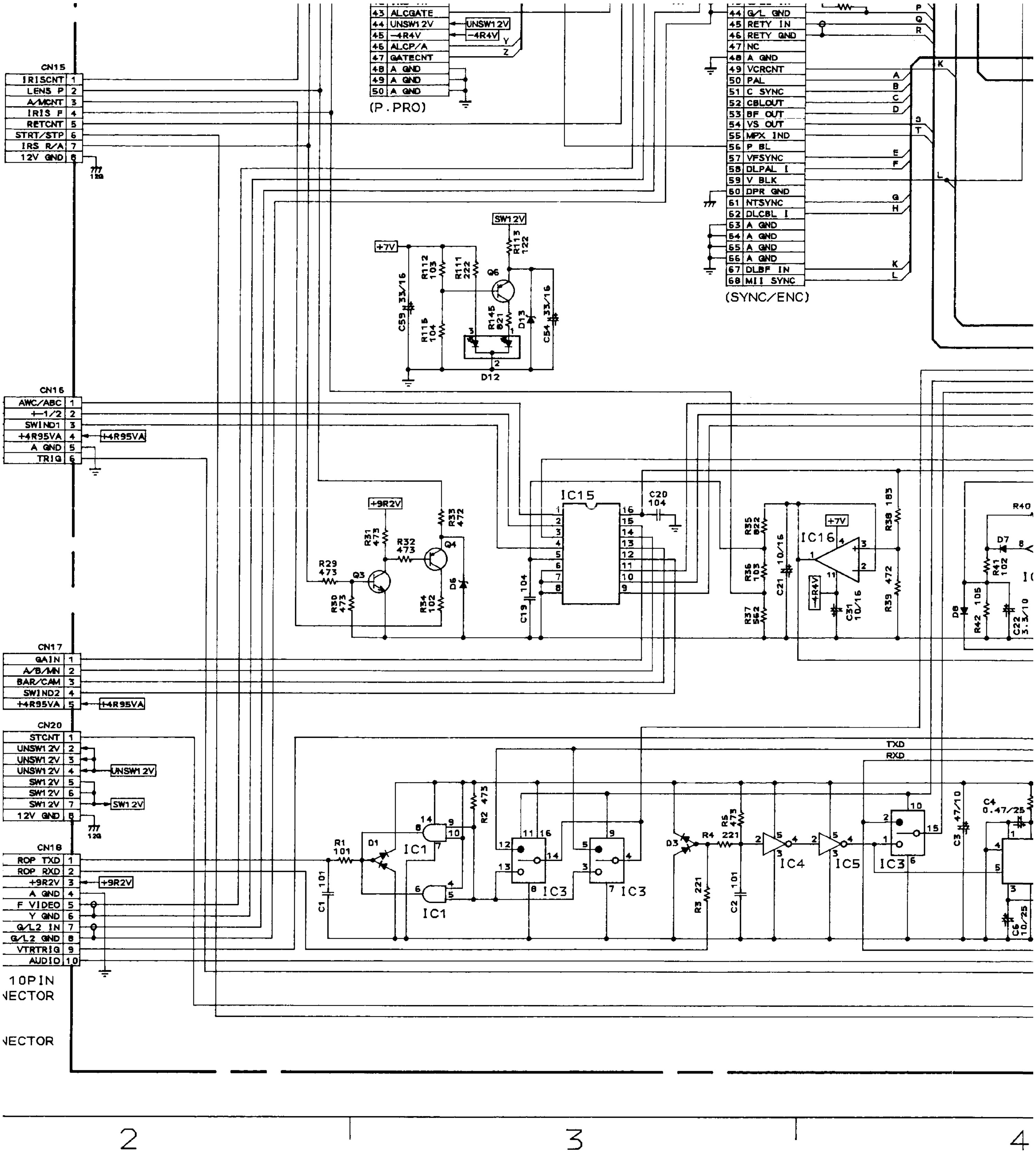

DOWN
DTL
HIBAND
USERSET
VR4 IRIS
VR3 T PED
PAGE
IND
FILE
SPED
ITEM
UP
IC20
IC19
IC30 NC
IC31 NC
IC18
RESET
SW1
SW2
SW3
SW4
SW5
SW6
R82 123
R83 103
R84 203
R85 103
R78 303
R79 513
R80 0R00
R81 203
R74 123
R75 103
R76 203
R77 103
R86 104
C46 104
C45 104
C44 104
C43 104
R110 103
R184 103
C53 104
R70 222
R73 222
VR4 103
VR3 103
C42 104
R69 102
R72 104
C41 104
C38 33/10
R149 102
C100 NC
C55 101
C56 101
R116 102
C57 10/16
-4R4V
+7V
CN5
1 +7V
2 R-IN
3 G-IN
4 B-IN
5 A2R5V
6 ADR5V
7 +4R95VA
8 +4R95VA
9 +4R95VD
10 +4R95VD
11 HD
12 VD
13 V BLK
14 C SYNC
15 DPR GND
16 DPR GND
17 14MHz
18 28MHz
19 DPR GND
20 CBLKIN
21 BF IN
22 PAL
23 DPR GND
24 DPR GND
25 DLCBLO
26 -4R4V
27 SAFETY
28 DLBF OUT
29 DLPAL O
30 NC
31 NTSYNC
32 VFSYNC
33 DPR GND
34 DPR GND
35 DPR GND
36 MII SYNC
37 A GND
38 A GND
39 NT Y
40 NTY GND
41 R-Y GND
42 B-Y GND
43 R-Y IN
44 B-Y IN
45 MII Y
46 MIIY GND
47 DPR GND
48 DPR GND
49 DPR GND
50 VF Y OUT
(D.PRO)
+7V
+4R95VA
+4R95VD
-4R4V
CN4
68 +9R2V
67 +9R2V
66 RCBRCUD
65 HG CNT
64 R-PED
63 G-PED
62 B-PED
61 R-GCNT
60 B-GCNT
59 IRSREM
58 H PHASE
57 SCFINE
56 SCCRS1
55 SCCRS2
54 R-WSHD
53 G-WSHD
52 B-WSHD
51 R-BSHD
50 G-BSHD
49 B-BSHD
48 +4R95VD
47 +4R95VD
46 -4R4V
45 -4R4V
44 AWCCNT
43 ALCP/A
42 GATECNT
41 RECTRG
40 FLD/FRM
39 A GND
38 A GND
37 DPR GND
36 DPR GND
35 DPR GND
+9R2V
+4R95VD
-4R4V
CN6
34 SEL 1
33 SEL 2
32 SEL 3
31 ADC 0
30 ADC 1
29 ADC 2
28 ADC 3
27 SHTA
26 SHTB
25 SHTC
24 TXD
23 RXD
22 TAPCTL
21 TAPREW
20 CAMCHR
19 VD
18 V BLK
17 HD
16 2GASO
15 SHTSW
14 HG LED
13 AUTOIND
12 BATWAR
11 SHTLED
10 TALLY
9 ENC/VF
8 +6dB C
7 CAM/BAR
6 IRSR/A
CN2
1 +7V
2 +7V
3 +7V
4 +9R2V
5 +9R2V
6 COOLER+
7 COOLER+
8 COOLER-
9 COOLER-
10 SW12V
11 SW12V
12 SW12V
13 +4R95VD
14 +4R95VD
15 +4R95VA
16 +4R95VA
17 -4R4V
18 -4R4V
19 ST CNT
20 +20R5V
21 +15R5V
22 +15R5V
23 -10R5V
24 -10R5V
25 A GND
26 A GND
27 A GND
28 DPR GND
29 DPR GND
30 DPR GND
31 12V GND
32 12V GND
33 12V GND
34 HD
(POWER)
+7V
+9R2V
SW12V
+4R95VD
+4R95VA
-4R4V
TP8 (GND)


CN10 NC
+4R95VA
1 +4R95VA
2 FLT3
3 FLT2
4 FLT1
5 A GND
IC24
L2 101
R156 104
R120 104
R122 681
R123 681
R182 473
C60 10/16
C61 10/16
R119 104
R121 104
R124 104
R125 104
C68 47/25
CN101
1 MIC HOT
2 MIC COLD
3 MIC GND
TO MIC BOARD ...E1
+4R95VA
R170 NC
R171 NC
R172 NC
R173 0R00
C100 NC
IC31 NC
IC31 NC
IC31 NC
Q7
SW12V
R126 102
R127 103
R128 47K
C62 104
C63 47/25
C64 47/25
C101 47/25
+7V
C58 10/16
R116 102
C56 101
R117 102
IC18
R175 104
R176 104
R178 104
R177 104
R179 104
Q9
Q8
+4R95VA
IC32
C19
1 EXT12V
2 EXT12V
3 EXT12V
4 12V GND
5 12V GND
6 12V GND
TO BATTERY JACK
128
CN1
1 EXT12V
2 EXT12V
3 MIC HOT
4 MIC COLD
5 EXT12V
6 MIC GND
7 PB AUD
8 PBAUD 2CH
9 PBAUD GND
10 PBAUD 2GN
11 ST CNT
12 VTRTRIG
13 SW12V
14 TALLY
15 S-Y OUT
16 S-C OUT
17 SVHSY GND
18 SVHSC GND
19 RECTIMER
20 NC
21 +9R2V
22 RETCNT
23 RETY IN
24 NC
25 RETY GND
26 NC
27 MPX IND
28 SUBTRIG
29 G/L GND
30 TAPREW
31 G/L2 IN
32 NC
33 -4R4V
34 NC
35 Y GND
36 RCU/CAM
37 VS OUT
38 FLM
39 BATWAR
40 VTRWAR
41 TAPCTL
42 NC
43 NC
44 NC
45 UNSW12V
46 ANTONIND
47 MII SYNC
48 S-MII
49 UNSW12V
50 NC
51 NC
52 VIDEO
53 TXD
54 NC
55 RXD
56 NC
57 VTRCHR
58 NC
59 R-Y OUT
60 AUDDCCNT
61 12V GND
62 12V GND
63 MIIY OUT
64 MII GND
65 12V GND
66 12V GND
67 B-Y OUT
SW12V
+9R2V
-4R4V
UNSW12V
+4R95VA
R174 103
G
H
K
L
Q
R
T
P
O
A
S
N
B
M
E
C
D
F
VR6 AUDIO
VR6 104
C69 104
R+
R+
R-
R-
VD
VD
VA
VA
T
V
V
V
V
V
ND
ND
ND
ND
ND
ND
TP8 (GND)
128



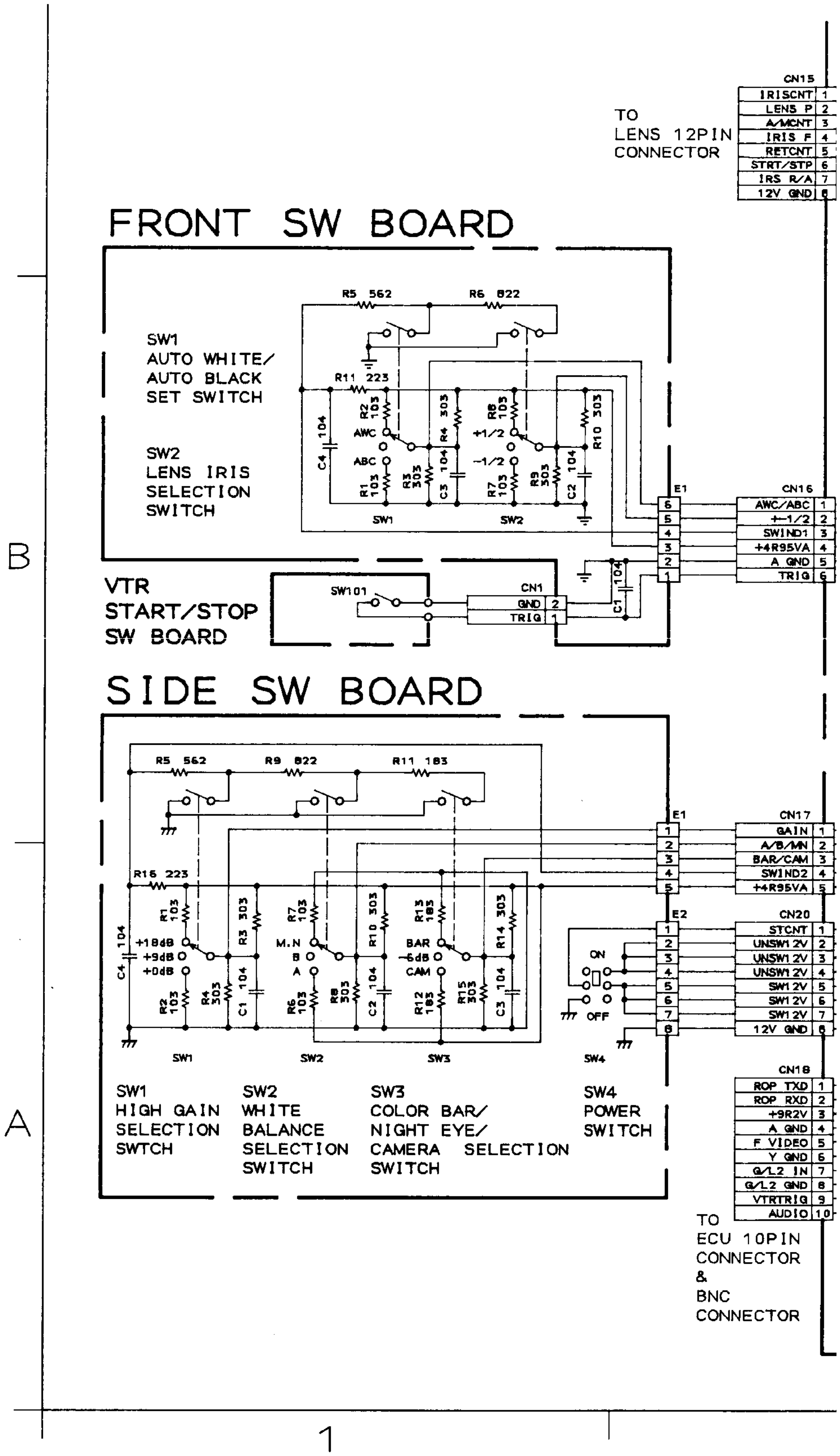
48 S-MII
49 UNSW12V
50 NC
51 NC
52 VIDEO
53 TXD
54 NC
55 RXD
56 NC
57 VTRCHR
58 NC
59 R-Y OUT
60 AUDDCCNT
61 12V GND
62 12V GND
63 MIIY OUT
64 MII GND
65 12V GND
66 12V GND
67 B-Y OUT
68 +4R95VA
UNSW12V
+4R95VA
CN12 NC
1 COOLER+
2 COOLER+
3 COOLER-
4 COOLER-
777
120
VR6
AUDIO
VR6 104
C69 104
B
M
E
C
D
F
+4R95VA
IC17
+7V
-4R4V
SW13
R61 103
R60 822
C34 104
C65 10/10
C32 10/10
C35 104
R62 103
R63 103
SW13
BATTERY
INDICATION
SWITCH
R55 102
14
R56 363
R57 153
C29 104
IC17
R58 183
R59 363
C30 104
IC17
D14
D15
D16
D17
IC17
IC12
R23 472
Q2
R20 103
C16 224
R21 105
R180 101
R22 105
C17 10/10
R155
NC
IC13
R24 103
R181 223
R27 222
R28 222
R25 103
R26 NC
IC14
C18 33/10
IC13
+4R95VA
6
7


46 MIIY GND
47 DPR GND
48 DPR GND
49 DPR GND
50 VF Y OUT
(D.PRO)
25 SHTC
24 TXD
23 RXD
22 TAPCTL
21 TAPREW
20 CAMCHR
19 VD
18 V BLK
17 HD
16 2GASO
15 SHTSW
14 HG LED
13 AUTOIND
12 BATWAR
11 SHTLED
10 TALLY
9 ENC/VF
8 +6dB C
7 CAM/BAR
6 IRSR/A
5 1/2 OP
4 1/2 CL
3 GAMMA
2 VCRCNT
1 RETCNT
(SYSCON)
P
Q
R
A
B
C
D
S
T
E
F
G
H
K
L
M
W
R38 105
R39 472
R40 273
R41 102
R42 105
R43 103
R44 103
D7
D8
C22 3.3/10
C23 3.3/25
IC16
R45 273
R46 103
R47 103
R48 102
R49 105
D9
D10
C24 3.3/10
C25 3.3/25
VR5 BATT
SW12V
R53 472
R52 203
R50 333
R51 NC
C26 104
VR5 103
-4R4V
IC25
C27 101
R54 102
C28 101
IC17
R55 102
TXD
RXD
IC3
C3 47/10
C4 0.47/25
R6 105
C6 10/25
IC6
R8 473
C5 0.47/25
R7 105
R9 473
R64 303
R65 203
IC7
C7 22/10
C8 22/10
IC8
C9 3.3/25
R103 101
IC9
R11 473
C12 22/10
C14 22/10
R10 223
R12 101
C11 152
C13 1/35
C66 33/10
R13 473
R14 223
R15 473
R16 473
Q1
R17 223
C15 104
IC10
R18 104
D5 NC
C67 10/25
IC11
R19 NC
R20 103
4
5
6



CN15
IRISCNT 1
LENS P 2
A/MCNT 3
IRIS F 4
RETCNT 5
STRT/STP 6
IRS R/A 7
12V GND 8
43 ALCGATE
44 UNSW12V
45 -4R4V
46 ALCP/A
47 GATECNT
48 A GND
49 A GND
50 A GND
UNSW12V
-4R4V
Y
Z
(P.PRO)
44 G/L GND
45 RETY IN
46 RETY GND
47 NC
48 A GND
49 VCRCNT
50 PAL
51 C SYNC
52 CBLOUT
53 BF OUT
54 VS OUT
55 MPX IND
56 P BL
57 VFSYNC
58 DLPAL I
59 V BLK
60 DPR GND
61 NTSYNC
62 DLCBL I
63 A GND
64 A GND
65 A GND
66 A GND
67 DLBF IN
68 MII SYNC
(SYNC/ENC)
P
Q
R
K
A
B
C
D
S
T
E
F
L
G
H
K
L
SW12V
+7V
R113 122
R112 103
R111 222
Q6
C59 33/16
R115 104
R145 821
D13
C54 33/16
D12
CN16
AWC/ABC 1
+-1/2 2
SWIND1 3
+4R95VA 4
A GND 5
TRIG 6
+4R95VA
+9R2V
R33 472
R31 473
R32 473
Q4
R29 473
Q3
R30 473
R34 102
D6
IC15
C20 104
C19 104
R35 822
R36 103
R37 562
C21 10/16
IC16
+7V
-4R4V
C31 10/16
R38 183
R39 472
R40
D7
R41 102
D8
R42 105
C22 3.3/10
CN17
GAIN 1
A/B/MN 2
BAR/CAM 3
SWIND2 4
+4R95VA 5
+4R95VA
CN20
STCNT 1
UNSW12V 2
UNSW12V 3
UNSW12V 4
SW12V 5
SW12V 6
SW12V 7
12V GND 8
UNSW12V
SW12V
CN18
ROP TXD 1
ROP RXD 2
+9R2V 3
A GND 4
F VIDEO 5
Y GND 6
G/L2 IN 7
G/L2 GND 8
VTRTRIG 9
AUDIO 10
+9R2V
10PIN
NECTOR
NECTOR
TXD
RXD
R1 101
D1
IC1
IC1
R2 473
C1 101
IC3
IC3
D3
R4 221
R5 473
R3 221
C2 101
IC4
IC5
IC3
C3 47/10
C4 0.47/25
C6 10/25
12Ω
2
3
4

Q1	A5
Q2	A6
Q3	B3
Q4	B3
Q5	E2
Q6	B3
Q7	E7
Q8	D7
Q9	D7
D1	A3
D3	A3
D6	B3
D7	B4
D8	B4
D9	B4
D10	B4
D11	E2
D12	B3
D13	B3
D14	B7
D15	B7
D16	B7
D17	B7



TO
LENS 12PIN
CONNECTOR
CN15
IRISCNT 1
LENS P 2
A/MCNT 3
IRIS F 4
RETCNT 5
STRT/STP 6
IRS R/A 7
12V GND 8
FRONT SW BOARD
SW1
AUTO WHITE/
AUTO BLACK
SET SWITCH
SW2
LENS IRIS
SELECTION
SWITCH
R5 562
R6 822
R11 223
R2 103
R4 303
R8 105
R10 303
C4 104
AWC
ABC
R1 103
R3 303
C3 104
+1/2
−1/2
R7 105
R9 303
C2 104
SW1
SW2
E1
CN16
AWC/ABC 1
+−1/2 2
SWIND1 3
+4R95VA 4
A GND 5
TRIG 6
VTR
START/STOP
SW BOARD
SW101
CN1
GND 2
TRIG 1
C1 104
B
SIDE SW BOARD
R5 562
R9 822
R11 183
R16 223
R1 103
R3 303
R7 103
R10 303
R13 183
R14 303
C4 104
+18dB
+9dB
+0dB
M.N
B
A
BAR
−6dB
CAM
R2 103
R4 303
C1 104
R6 103
R8 303
C2 104
R12 183
R15 303
C3 104
ON
OFF
SW1
SW2
SW3
SW4
E1
CN17
GAIN 1
A/B/MN 2
BAR/CAM 3
SWIND2 4
+4R95VA 5
E2
CN20
STCNT 1
UNSW1 2V 2
UNSW1 2V 3
UNSW1 2V 4
SW1 2V 5
SW1 2V 6
SW1 2V 7
12V GND 8
CN18
ROP TXD 1
ROP RXD 2
+9R2V 3
A GND 4
F VIDEO 5
Y GND 6
G/L2 IN 7
G/L2 GND 8
VTRTRIG 9
AUDIO 10
SW1
HIGH GAIN
SELECTION
SWTCH
SW2
WHITE
BALANCE
SELECTION
SWITCH
SW3
COLOR BAR/
NIGHT EYE/
CAMERA SELECTION
SWITCH
SW4
POWER
SWITCH
TO
ECU 10PIN
CONNECTOR
&
BNC
CONNECTOR
A
1

MOTHER BOARD

	IC3	IC4	IC5	IC6	IC7	IC8	IC9	IC10	IC11	IC12	IC13	IC14
Pin 1	4.9	-	-	0	0	2.3	2 6	0	-	0	0	1.2
2	4.9	4 9	0	4.5	0	2.0	2 6	4.9	0	0	4.5	2 4
3	4.7	0	0	4.9	0	0	2.6	0	0	0	4 9	4.9
4	4.7	0	4 9	0	4 9	4 9	2 6	0	4.9	4.9	0	0
5	4.9	4.9	4.9	4 9	4 9	4.9	0.2	0	4.9	4.9	4.9	-
6	0			0			-	0			0	-
7	0			4.9			2.1	0			4.9	0
8	0			0			-	0			0	4.9
9	4.7			4.9			1.4	-			4.9	
10	4 7			0			4.3	-			0	
11	4.7			4.9				0			-	
12	4 9			0				0			-	
13	4.7			4.8				0			-	
14	4.7			4.5				0			4 9	
15	4.9			0				-			0	
16	4 9			4 9				4 9			4.9	

	IC15	IC16	IC17	IC18	IC19	IC20	IC21	IC22	IC23	IC24	IC25	IC32
Pin 1	2.5	1.0	2 5	2.3	4.9	4 9	4.9	0	-	2.5	1.1	4.9
2	2.5	1.0	2 5	2.3	1 0	3.8	4.9	0	4.5	2.5	1.0	4 9
3	1 4	1.0	2.5	2.3	-	2.3	0	0	0	-	0	0
4	4 9	7.0	7 0	-4.4	3.8	2 0	0	0	0	-	1.9	4.9
5	1.5	1.0	3.3	0.3	4.9	3 8	4.9	4.9	4.9	-	0	4.9
6	0	1 0	3 3	0 1	0	0				0.2	0	
7	0	0.2	3.3	0.1	0	0				0.2	0	
8	0	-3.2	1.4	8.0	0	0				0.2	0	
9	0.1	1.1	1.4		0.1	0 1				9 5	0.1	
10	0.1	1.0	1 5		0.1	0 1				9.5	0.1	
11	0.1	-4 4	-4 4		0 1	0 1				9 4	0.1	
12	4.9	1.4	0		4.9	0				4.9	0	
13	1.3	1.4	0		0	2 3				2.5	-	
14	1.0	1 4	0		4.9	0				2.5	0	
15	1 0				4.9	2.5				2 5	0	
16	4 9				4.9	4 9				9.6	4.9	

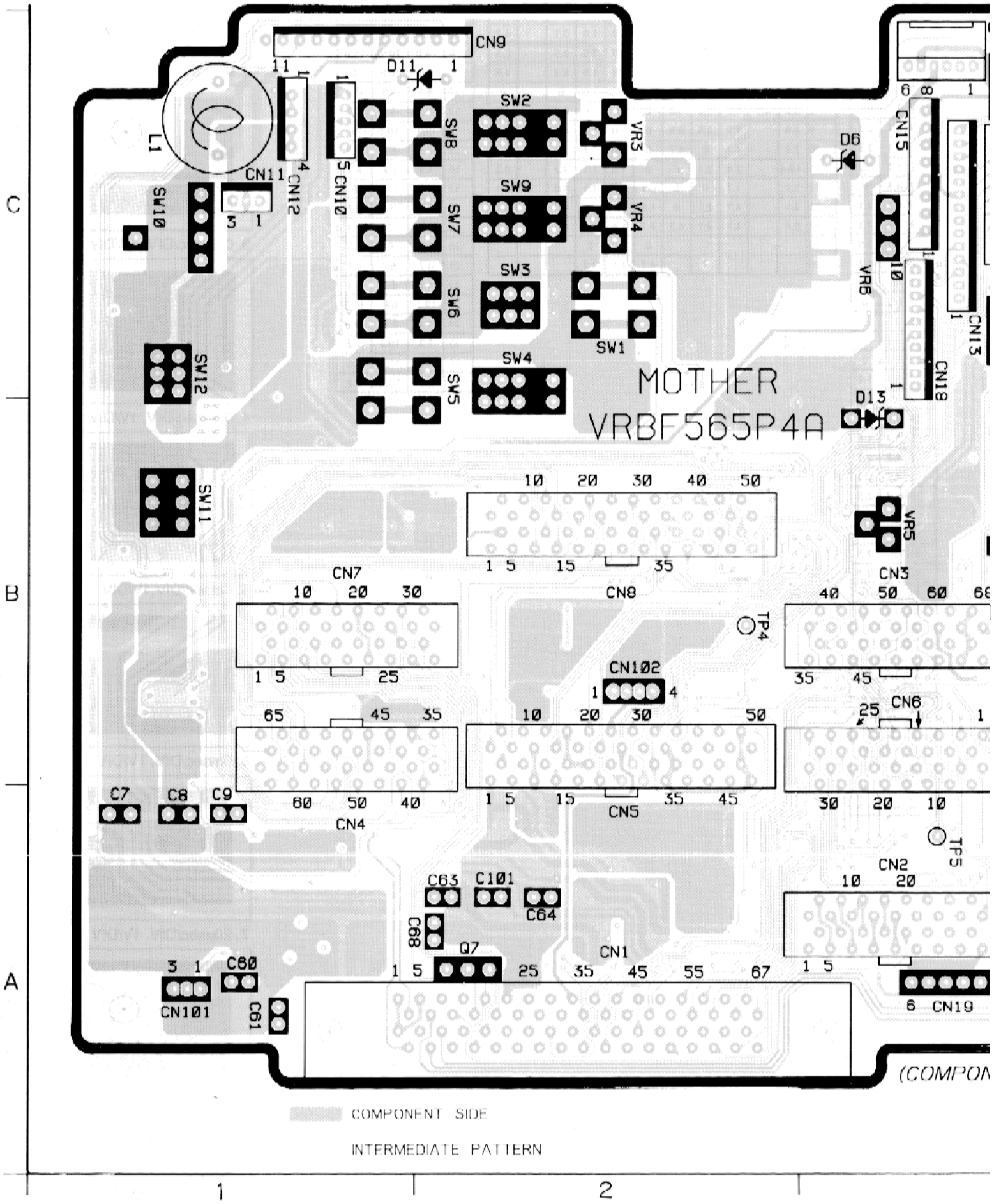
	B	C	E
Q1	4.9	0	4 9
2	0	0	4 9
3	0 6	0	0
4	7 5	8.2	8.2
5	9.2	-	8 2
6	6 1	-	6.3
7	10 2	10 3	9.6
8	0 6	0	0
9	0	9 5	0

MOTHER BOARD

<Index>

MOTHER BOARD

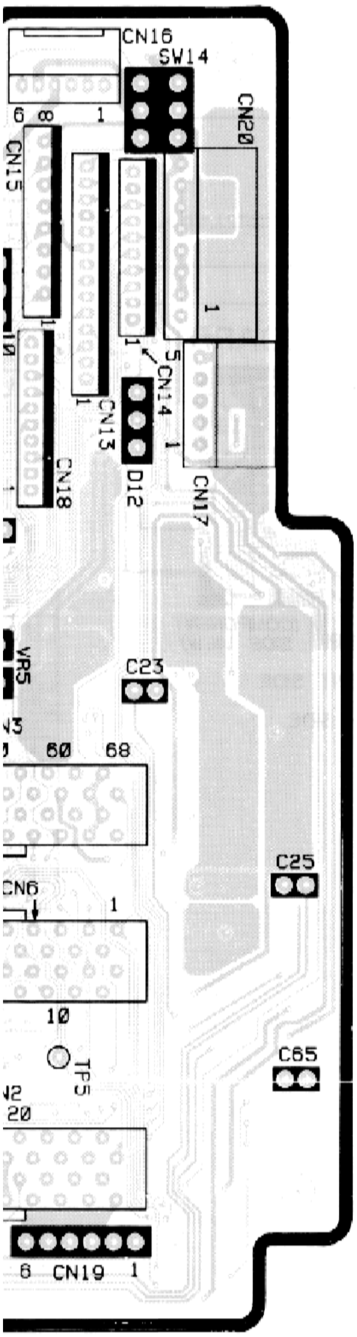
IC1	C4
IC3	C5
IC4	B5
IC5	B5
IC6	B6
IC7	B6
IC8	B6
IC9	A6
IC10	C5
IC11	C5
IC12	C5
IC13	A5
IC14	A5
IC15	C4
IC16	B4
IC17	A4
IC18	C6
IC19	C6
IC20	C5
IC21	C6
IC22	C6
IC23	C6
IC24	A6
IC25	A4
IC32	A6
Q1	C5
Q2	C5
Q3	C4
Q4	C4
Q5	C6
Q6	C4
Q7	A5
Q8	A6
Q9	A6
D1	B4
D3	B4
D6	C3
D7	B4
D8	B4
D9	B4
D10	B4
D11	C2
D12	C4
D13	B4
D14	A4
D15	A4
D16	A4
D17	A4



C
B
A
1
2
CN9
D11
L1
SW10
CN11
CN12
CN10
SW8
SW7
SW6
SW5
SW2
SW9
SW3
SW4
SW1
VR3
VR4
VR5
VR6
D6
D13
CN15
CN13
CN18
SW12
SW11
MOTHER
VRBF565P4A
CN7
CN8
CN3
TP4
CN102
CN6
CN4
CN5
TP5
CN2
C7
C8
C9
C63
C101
C64
C68
Q7
CN1
C60
C61
CN101
CN19
(COMPON
COMPONENT SIDE
INTERMEDIATE PATTERN

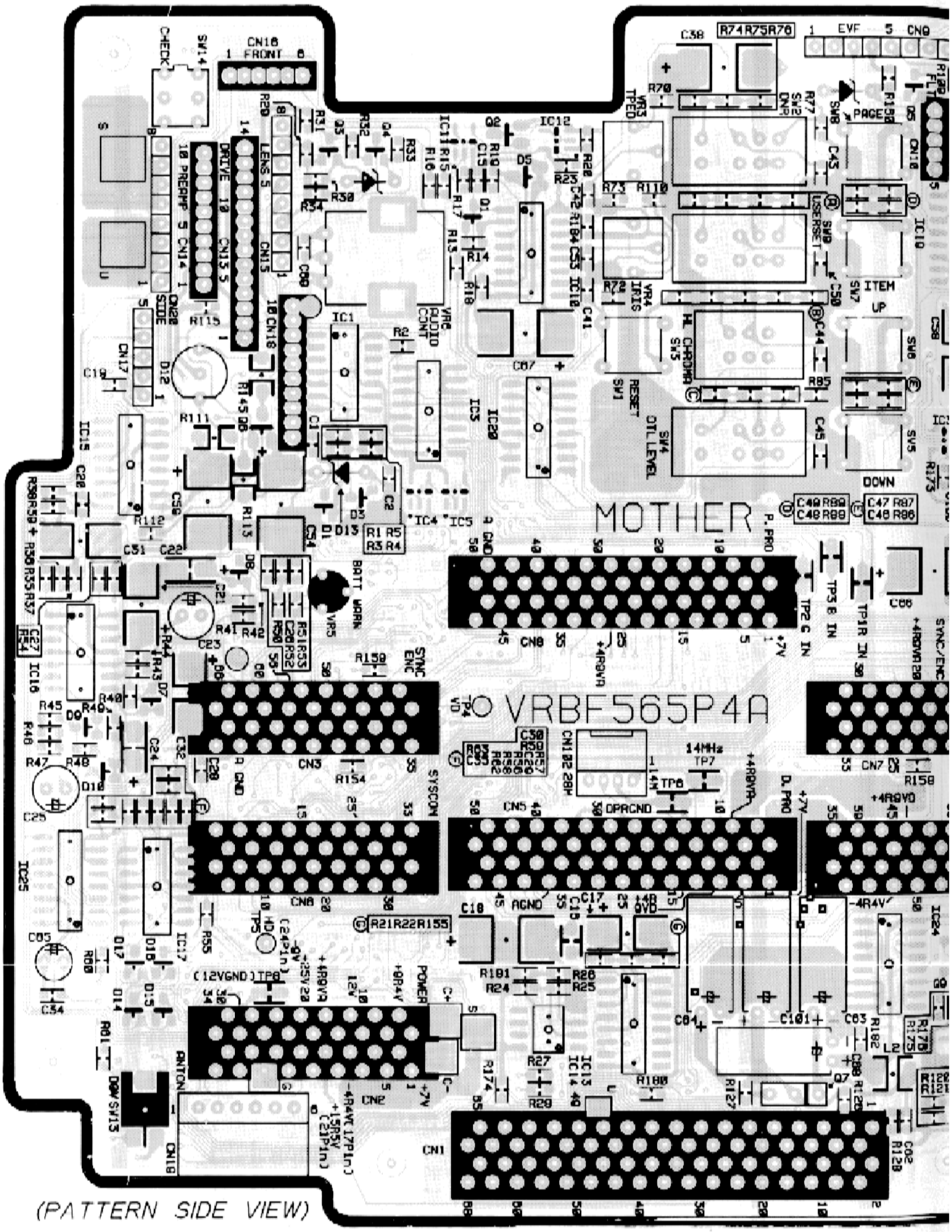
CONDUCTOR VIEW OF MOTHER BOARD

MOTHER B



CN16
SW14
CN20
CN15
CN14
CN13
CN18
D12
CN17
VR5
C23
C25
CN6
C65
TP5
CN19

(COMPONENT SIDE VIEW)



CHECK
SW14
CN16 FRONT
CN14
CN15
CN18
CN20 SIDE
CN17
IC1
IC5
IC12
IC15
IC16
IC17
IC20
IC25
VR4 IRIS
VR6 AUDIO CONT
SW1 RESET
SW3 CHROMA
SW4 OTL LEVEL
SW5
SW6
SW7 ITEM UP
SW8 PAGE
SW9 USERSET
DOWN
MOTHER
BATT WARN
VR5
SYNC ENC
SYSCON
VRBF565P4A
CN8
CN3
CN5
CN6
CN7
CN1
CN2
CN9
EVF
CN12 28H
14MHz TP7
TP4 VD
TP5
TP6
TP8 G IN
TP9 B IN
TP10 R IN
DPRGND
AGND
POWER
ANTON
DOW SW13
IC13 IC14
IC24

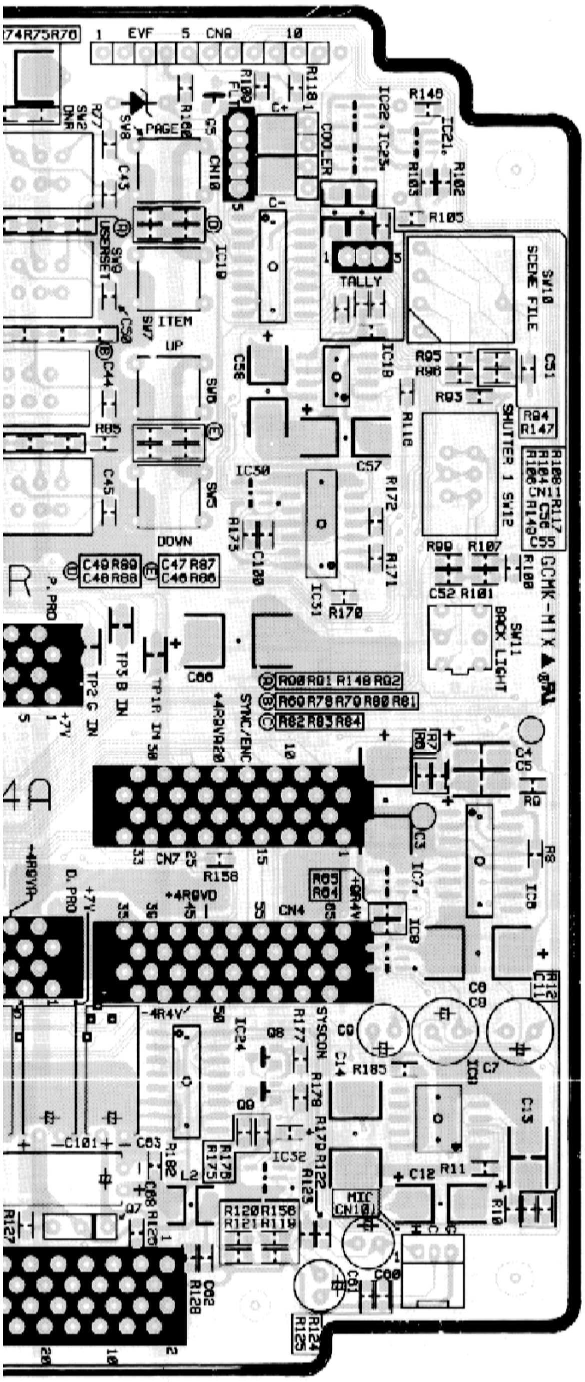
(PATTERN SIDE VIEW)

▨ PATTERN SIDE

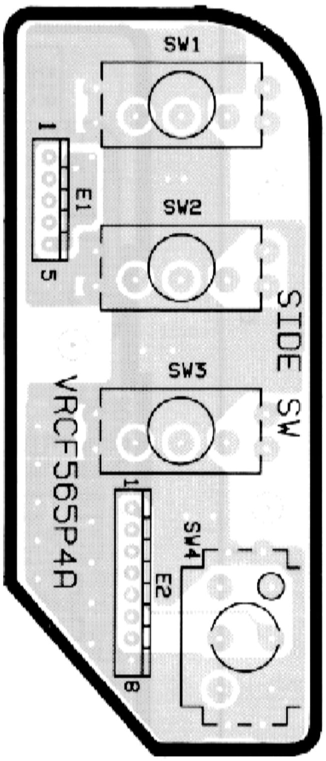
INTERMEDIATE PATTERN

3 4 5

MOTHER BOARD

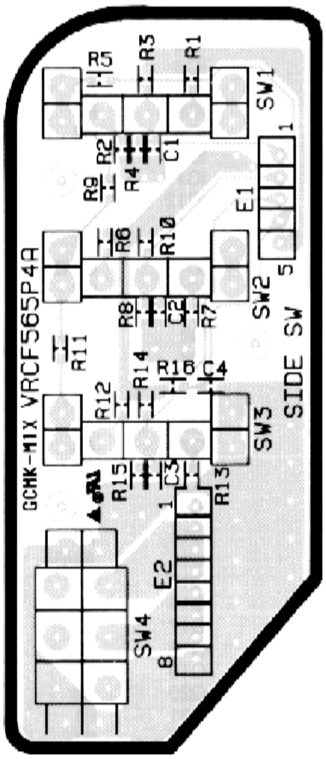

R74R75R76
EVF
CN9
PAGE
CN10
COOLER
IC22,IC25
R146
IC21
R105
TALLY
SW10 SCENE FILE
SW8 USERSET
SW7 ITEM UP
SW6
SW5 DOWN
IC10
IC18
C36
C57
IC50
IC51
R170
R95
R96
R93
R94 R147
SHUTTER 1 SW12
R99 R107
C52 R101
SW11 BACK LIGHT
GCMK-MIX
C49 R89
C48 R88
C47 R87
C46 R86
P.PRO
TP2 G IN
TP3 B IN
TP1R IN
C66
+4R9VA20
SYNC/ENC
R68 R91 R148 R92
R69 R78 R79 R80 R81
R82 R83 R84
CN7
R158
+4R9VD
CN4
D.PRO
+7V
-4R4V
IC24
Q8
SYSCON
R177
R178
Q9
IC32
R120 R156
R121 R119
MIC CN10
C12
R11
R10
C13
C7
C4
C5
R9
IC7
IC8
C3
R8
C8
C9
C101
C83
R128
R125
R124
4A
R

SIDE SW BOARD


SW1
1
E1
5
SW2
SW3
SIDE SW
VRCF565P4A
1
SW4
E2
8

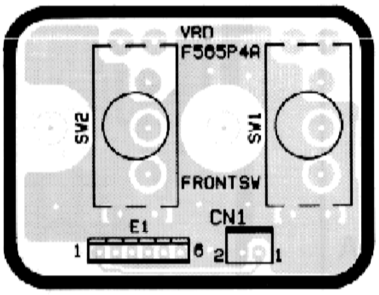
(COMPONENT SIDE VIEW)

SIDE SW BOARD

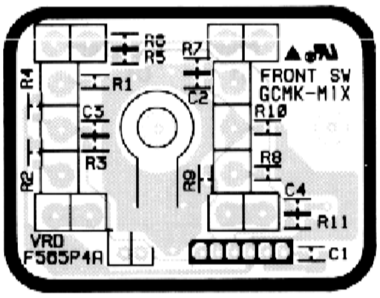

R5
R3
R1
SW1
R2
C1
R4
R9
1
E1
5
R6
R10
VRCF565P4A
R8
C2
R7
SW2
R11
SIDE SW
R12
R14
R16
C4
GCMK-MIX
R15
C3
R13
SW3
1
E2
SW4
8

(PATTERN SIDE VIEW)

FRONT SW BOARD


VRD
F565P4A
SW2
SW1
FRONTSW
E1
1
6
CN1
2
1

(COMPONENT SIDE VIEW)


R6
R5
R7
R4
R1
FRONT SW
GCMK-MIX
C2
C3
R10
R3
R8
R2
R9
C4
R11
VRD
F565P4A
C1

(PATTERN SIDE VIEW)

6 7 8

<Index>

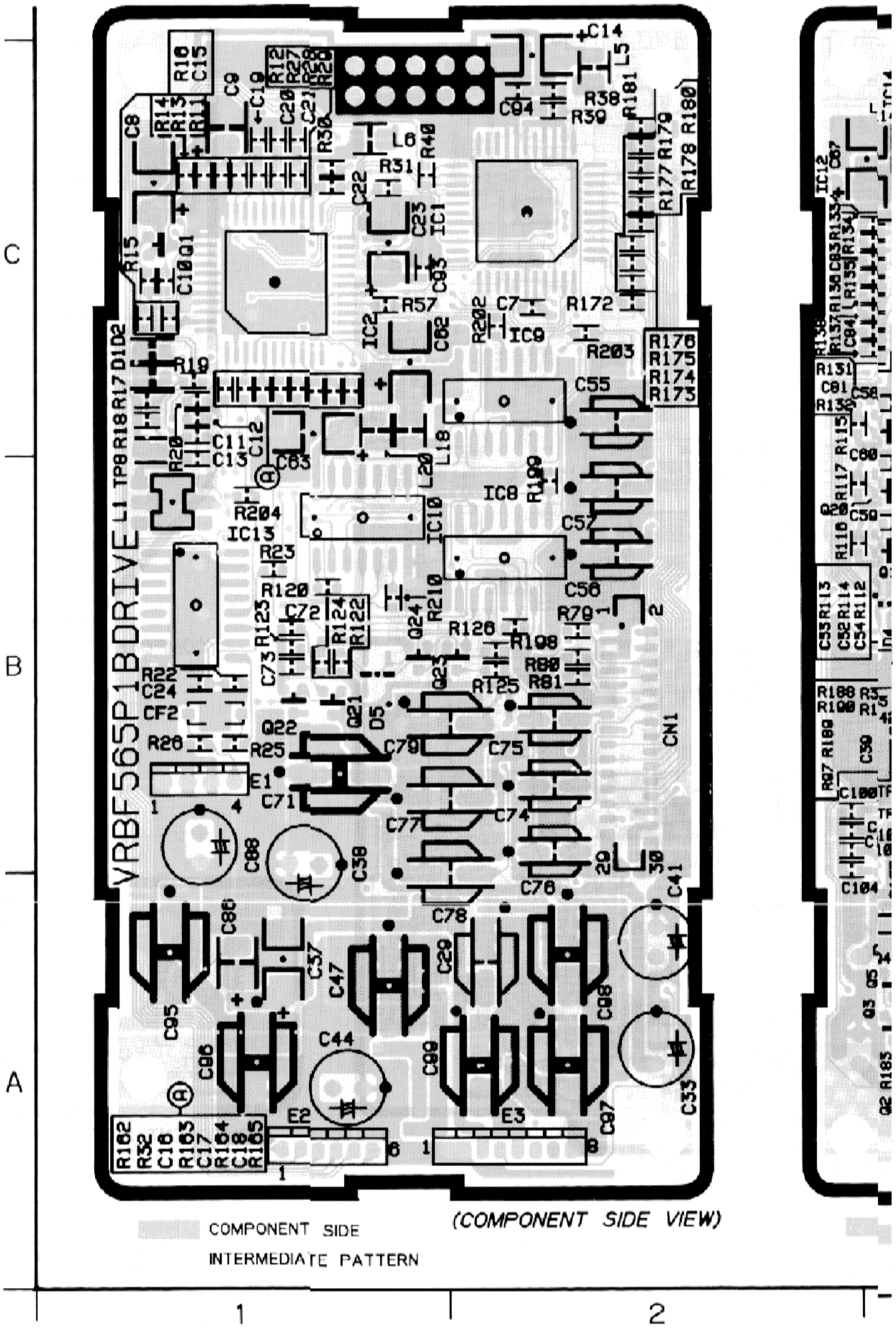
Drive Board

IC1	C1
IC2	C1
IC3	C3/C4
IC6	A3
IC7	A4
IC8	B2
IC9	C2
IC10	B1
IC11	B3
IC12	C3
IC13	B1
IC15	B4
IC16	C3/C4
IC17	C3
Q1	C1
Q2	A3
Q3	A3
Q4	A3
Q5	A3
Q6	A3
Q7	A3
Q8	A3
Q9	A3
Q10	A3
Q11	A3
Q12	A4/B4
Q13	A4
Q16	B3
Q17	B3
Q18	C3
Q19	B3
Q20	B3
Q21	B1
Q22	B1
Q23	B2
Q24	B1
Q25	B3
Q26	B3
Q27	B3
D1	C1
D2	C1
D3	B3
D4	B3
D5	B1
D6	B3
D7	B3

DRIVE SUB BOARD

IC1	C4

DRIVE BOARD


DRIV
C
B
A
1
2
VRBF565P1BDRIVE
IC1
IC2
IC8
IC9
IC10
IC13
CN1
E1
E2
E3
L1
L5
L6
L18
L20
TP8
D1D2
D5
Q1
Q21
Q22
Q23
Q24
R10
R12
R13
R14
R15
R17
R18
R19
R20
R22
R23
R25
R26
R27
R28
R29
R30
R31
R38
R39
R40
R57
R79
R80
R81
R120
R123
R124
R122
R125
R126
R172
R173
R174
R175
R176
R177
R178
R179
R180
R181
R182
R183
R184
R185
R198
R199
R202
R203
R204
R210
R32
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C29
C33
C37
C38
C41
C44
C47
C55
C56
C57
C62
C63
C71
C72
C73
C74
C75
C76
C77
C78
C79
C86
C88
C93
C94
C95
C96
C97
C98
C99
CF2
1
4
6
1
8
1
2
29
30

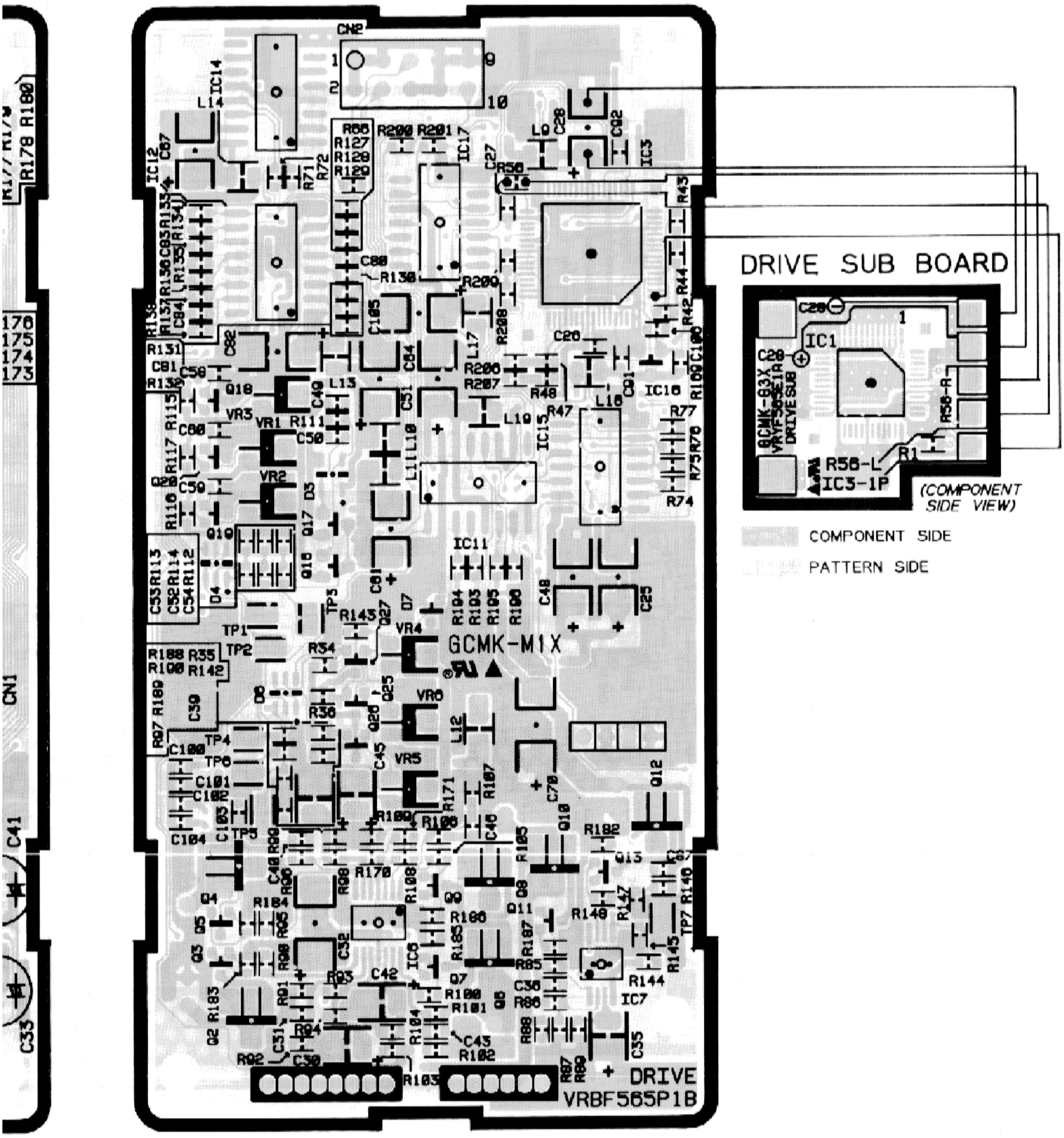
COMPONENT SIDE

INTERMEDIATE PATTERN

(COMPONENT SIDE VIEW)

CONDUCTOR VIEW OF DRIVE BOARD

DRIVE BOARD


R177/R179
R178 R180
176
175
174
173
CN1
C41
C33
CN2
1
2
9
10
IC14
L14
IC12
C87
R72
R71
R86
R127
R128
R129
R200
R201
IC17
L9
C28
C92
IC3
C27
R50
R43
R133
C83
R134
R138
R135
R137
C84
R130
C88
R130
R209
R44
R42
C100
R208
C105
C64
L17
C26
C91
IC16
R109
R131
C82
C81
C50
R132
Q18
C49
L13
C51
R206
R207
R48
L18
R115
C60
VR3
VR1
R111
C58
L19
IC15
R47
R77
R117
C50
L10
L11
R76
R75
Q20
C59
VR2
D3
R74
R116
Q17
Q19
Q16
C53
R113
C52
R114
C54
R112
D4
IC11
TP3
C61
R104
R103
R105
R106
C48
C25
D7
TP1
Q27
R143
VR4
TP2
R188
R35
R34
GCMK-M1X
R190
R142
Q25
R189
C39
VR6
R36
R97
Q26
L12
TP4
C100
TP6
C45
VR5
C101
C102
R187
C70
Q12
R171
C103
R169
R168
C46
Q10
R182
C104
TP5
R99
C40
R96
R170
R98
R108
R185
Q13
Q8
C3
Q4
R184
Q9
Q11
R147
R140
R95
R186
R148
TP7
Q5
R90
C52
IC6
R183
R187
R85
R145
Q3
R93
C42
Q7
C36
R144
R91
R100
R101
R86
IC7
R183
Q6
Q2
R94
R104
C43
R88
C35
C51
R102
R92
C30
R103
R87
R89
DRIVE
VRBF565P1B
DRIVE SUB BOARD
C29
IC1
C20
1
GCMK-03X
VRYF565E1A
DRIVE SUB
R56-R
R1
R56-L
IC3-1P

(COMPONENT SIDE VIEW)

COMPONENT SIDE

PATTERN SIDE

VIEW)

PATTERN SIDE

INTERMEDIATE PATTERN

(PATTERN SIDE VIEW)

DRIVE BO

	IC1	IC
Pin 1	0	2.3
2	0	0
3	0	2.2
4	0	0.4
5	0	2.3
6	0	2.2
7	4.7	2.4
8	2.2	0.1
9	0.4	2.3
10	1.1	2.3
11	1.1	4.6
12	4.5	0
13	0.1	2.1
14	4.6	2.5
15	0.1	3.5
16	4.7	4.7
17	4.7	4.6
18	0.3	0
19	0.2	0
20	4.3	0
21	4.3	0
22	0.7	1.0
23	0	0.5
24	4.7	4.6
25	4.7	4.6
26	4.7	2.3
27	4.7	2.2
28	4.7	2.3
29	0	2.2
30	0	0
31	0	2.4
32	0	2.3
33	0	0
34	0.5	0
35	0.1	4.6
36	0.1	4.6
37	4.7	4.6
38	4.4	0
39	0	0
40	0	0
41	4.7	0
42	0	0
43	0	4.6
44	4.7	1.5

DRIVE BOARD

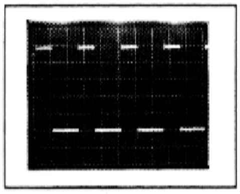
	IC1	IC2
Pin 1	0	2.3
2	0	0
3	0	2.2
4	0	0.4
5	0	2.3
6	0	2.2
7	4.7	2.4
8	2.2	0.1
9	0.4	2.3
10	1.1	2.3
11	1.1	4.6
12	4.5	0
13	0.1	2.1
14	4.6	2.5
15	0.1	3.9
16	4.7	4.7
17	4.7	4.6
18	0.3	0
19	0.2	0
20	4.3	0
21	4.3	0
22	0.7	1.0
23	0	0.9
24	4.7	4.6
25	4.7	4.6
26	4.7	2.3
27	4.7	2.2
28	4.7	2.3
29	0	2.2
30	0	0
31	0	2.3
32	0	2.3
33	0	0
34	0.5	0
35	0.1	4.6
36	0.1	4.6
37	4.7	4.6
38	4.4	0
39	0	0
40	0	0
41	4.7	0
42	0	0
43	0	4.6
44	4.7	1.9

	IC6	IC7	IC8	IC9	IC10	IC11	IC12	IC14	IC15	IC16	IC17
Pin 1	0.9	-0.4	4.7	0	4.7	0	4.7	0	0.1	4.7	4.7
2	3.0	-5.2	1.9	3.9	1.0	0	1.1	1.0	4.6	4.7	0.1
3	3.0	-5.2	2.2	3.9	1.0	1.9	1.0	1.0	4.6	0	0.5
4	20.4	-10.5	4.7	0	4.0	0	1.0	1.0	0.1		4.7
5	3.1	5.2	1.9	0	0.1	4.7	1.0	1.0	0.5		0.1
6	3.1	-5.3	1.9	0	0.1	1.9	1.0	1.0	4.2		4.6
7	0.4	-0.5	0	0	0	4.7	1.0	1.0	0		0
8	0.6	4.9	1.9	2.6	1.0	0	0	0	0.5		4.6
9	2.9		1.9	2.5	0.9	0	1.0	1.1	4.2		0.1
10	2.9		4.7	0	4.7	0	1.0	1.1	2.4		4.7
11	-10.4		2.4	2.1	0	0	1.0	1.1	2.2		0.5
12	3.1		1.7	0	0	4.7	1.0	1.1	4.0		0.1
13	3.1		4.7	2.1	0	1.9	1.1	1.1	0.7		4.7
14	0.4		4.7	4.7	4.7	4.7	1.0	1.1	4.7		4.7
15						0	1.0	0			
16						4.7	1.1	4.7			

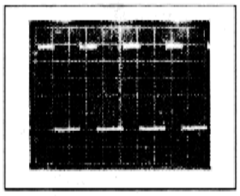
	B	C	E
Q1	(G) 1.1	(D) 4.7	(S) 2.5
2	19.0	19.3	20.4
3	0.6	19.8	0
5	0.4	19.9	0
6	14.8	14.9	15.4
7	0.6	14.8	0
10	-6.1	-5.8	-6.8
11	-0.9	-6.2	-0.3
12	-9.9	-10.0	-10.5
13	-0.9	-6.0	-0.3
16	4.4	1.2	4.7
17	0.4	1.2	0
18	1.8	0	2.3
19	1.7	0	2.3
20	1.8	0	2.3
21	4.7	-6.4	4.1
22	4.7	-6.4	4.1
23	19.2	0.8	19.2
24	-8.8	0.8	-9.5
25	7.8	19.2	7.2
26	6.9	19.2	6.4
27	7.7	19.2	7.2

DRIVE BOARD

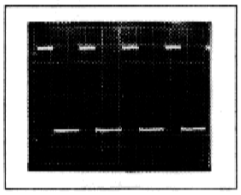
1. 0.5μsec/DIV, 1V/DIV



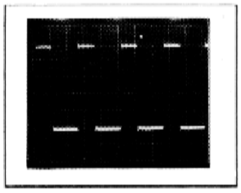
2. 0.5μsec/DIV, 1V/DIV



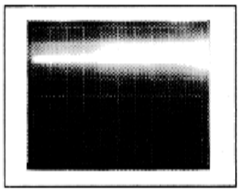
3. 0.5μsec/DIV, 1V/DIV



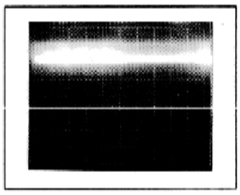
4. 0.5μsec/DIV, 1V/DIV



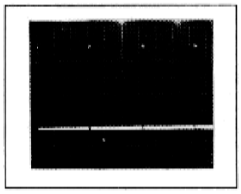
5. 5msec/DIV,1V/DIV



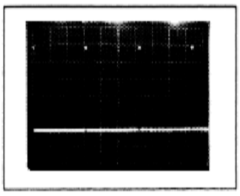
6. 5msec/DIV, 1V/DIV



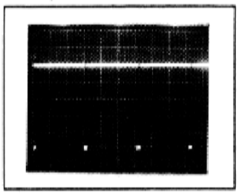
7. 20μsec/DIV, 1V/DIV



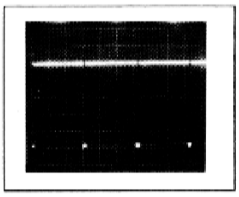
8. 20μsec/DIV,m 1V/DIV



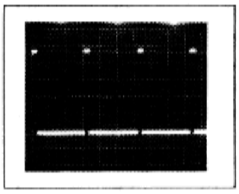
9. 20μsec/DIV, 1V/DIV



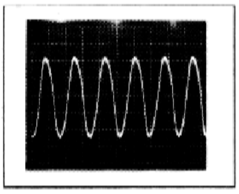
10. 20μsec/DIV, 1V/DIV



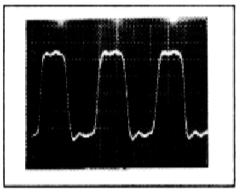
11. 20μsec/DIV, 1V/DIV



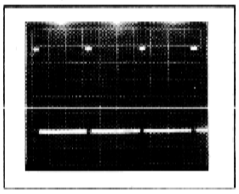
12. 20nsec/DIV, 1V/DIV



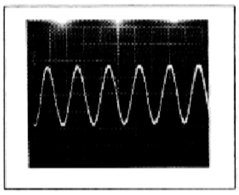
13. 20nsec/DIV, 1V/DIV



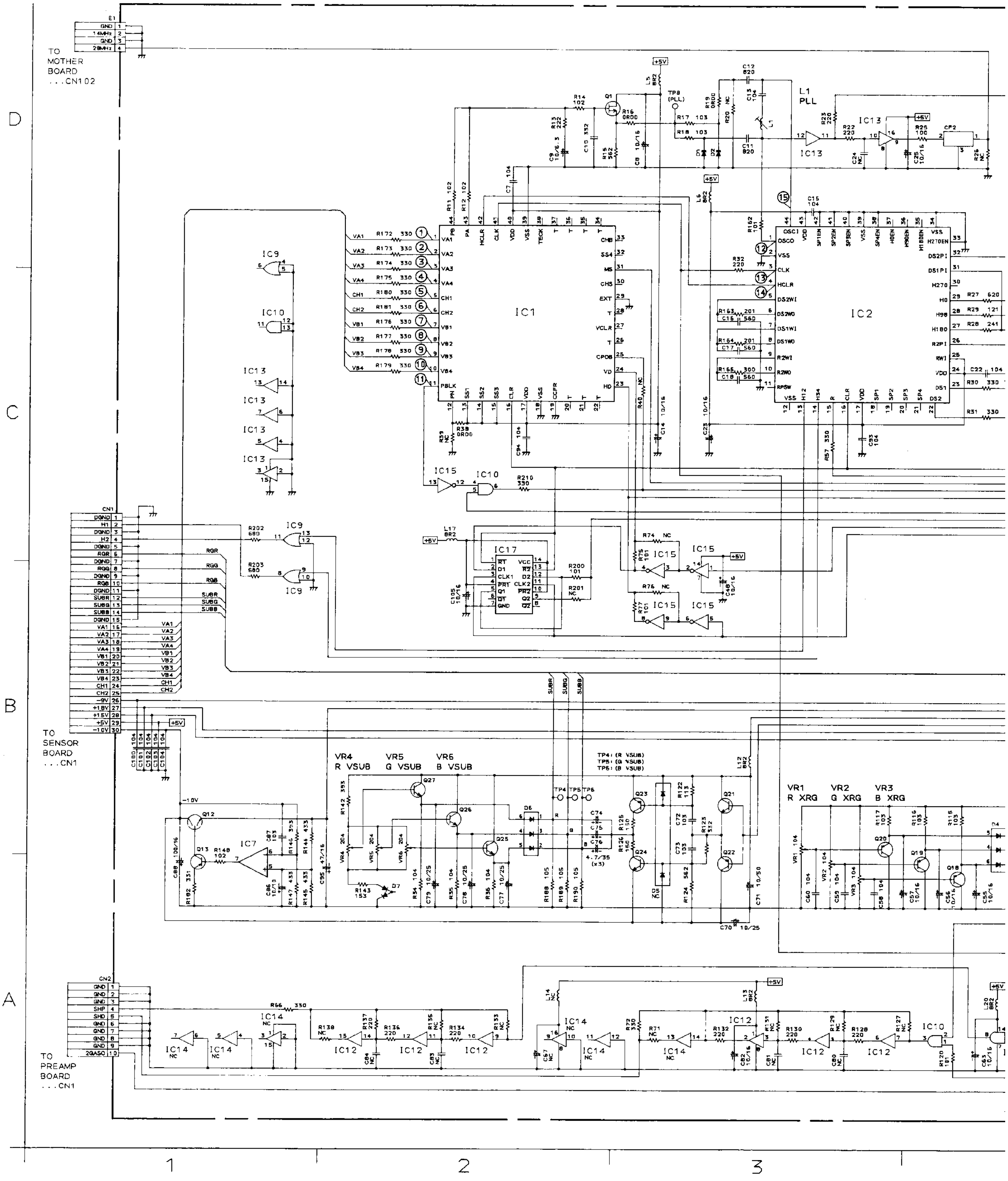
14. 20μsec/DIV, 1V/DIV



15. 20nsec/DIV, 1V/DIV

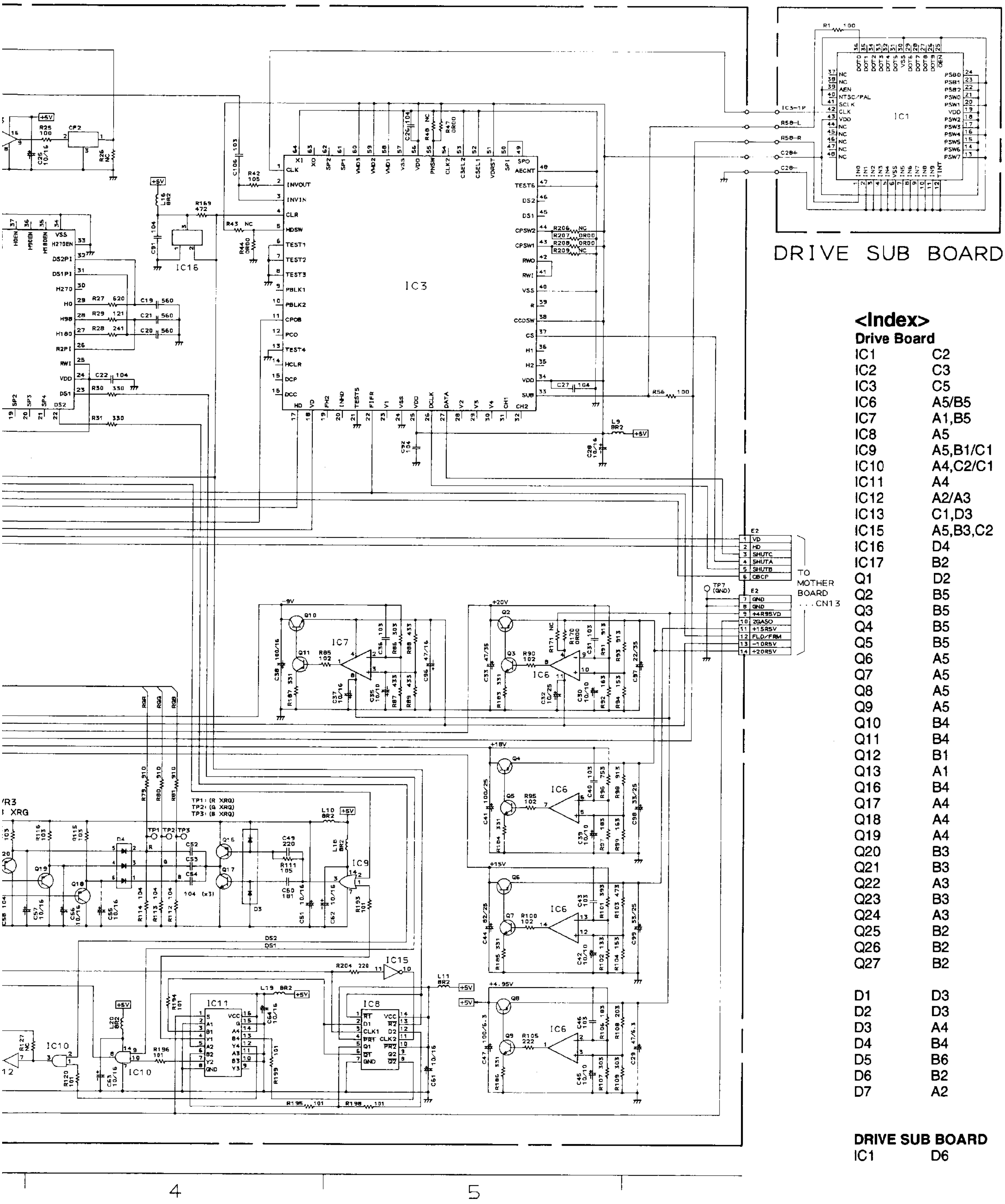


SCHEMATIC DIAGRAM O



E1
GND 1
14MHz 2
GND 3
28MHz 4
TO MOTHER BOARD ...CN102
D
C
B
A
1
2
3
+5V
L5 8R2
TP8 (PLL)
Q1
R14 102
R13 222
R16 0R00
R17 103
R18 103
R19 0R00
R20 NC
C12 820
C13 104
C11 820
L1 PLL
R23 220
R22 220
IC13
R25 100
CP2
R26 NC
C24 NC
C25 10/16
C9 10/6.3
C10 332
R15 562
C8 10/16
D1
D2
L6 8R2
C7 104
R11 102
R12 102
IC1
IC2
C15 104
R162 101
R32 220
VA1
VA2
VA3
VA4
CH1
CH2
VB1
VB2
VB3
VB4
PBLK
R172 330
R173 330
R174 330
R175 330
R180 330
R181 330
R176 330
R177 330
R178 330
R179 330
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
PB
PA
HCLR
CLK
VDD
VSS
TECK
CHB
SS4
MS
CHS
EXT
VCLR
CPOB
VD
HD
PN
SS1
SS2
SS3
CLR
CCFR
OSCI
OSCO
HCLR
DS2WI
DS2WO
DS1WI
DS1WO
R2WI
R2WO
RPSW
H270EN
DS2PI
DS1PI
H270
H0
H90
H180
R2PI
RWI
DS1
DS2
R27 620
R29 121
R28 241
C22 104
R30 330
R31 330
R163 201
C16 560
R164 201
C17 560
R165 300
C18 560
R39 NC
R38 0R00
C94 104
R40 NC
C14 10/16
C23 10/16
R57 330
C93 104
IC9
IC10
IC13
IC15
R210 330
CN1
DGND 1
H1 2
DGND 3
H2 4
DGND 5
RGR 6
DGND 7
RGG 8
DGND 9
RGB 10
DGND 11
SUBR 12
SUBG 13
SUBB 14
DGND 15
VA1 16
VA2 17
VA3 18
VA4 19
VB1 20
VB2 21
VB3 22
VB4 23
CH1 24
CH2 25
−9V 26
+18V 27
+15V 28
+5V 29
−10V 30
TO SENSOR BOARD ...CN1
R202 680
R203 680
L17 8R2
IC17
RT
D1
CLK1
PR1
Q1
GND
VCC
R2
D2
CLK2
PR2
Q2
C105 10/16
R200 101
R201 NC
R74 NC
R75 101
R76 NC
R77 101
C48 10/16
C100 104
C101 104
C102 104
C103 104
C104 104
SUBR
SUBG
SUBB
VR4 R VSUB
VR5 G VSUB
VR6 B VSUB
TP4: (R VSUB)
TP5: (G VSUB)
TP6: (B VSUB)
TP4
TP5
TP6
−10V
Q12
Q13
Q25
Q26
Q27
Q23
Q24
Q21
Q22
IC7
R148 102
R142 393
R143 153
D7
D6
R146 393
R144 433
R147 433
R145 433
C87 103
C86 10/10
C95 47/16
C88 100/16
R182 351
R54 104
R35 104
R36 104
C79 10/25
C78 10/25
C77 10/25
R188 105
R189 105
R190 105
C74
C75
C76
4.7/35 (x3)
R125 150
R126 150
R122 113
R123 332
C72 103
C73 103
R124 562
Q3
Q5
L12 8R2
C71 10/50
C70 10/25
VR1 R XRG
VR2 G XRG
VR3 B XRG
R117 103
R116 103
R115 103
Q20
Q19
Q18
C60 104
C59 104
C58 104
C57 10/16
C56 10/16
C55 10/16
D4
CN2
GND 1
GND 2
GND 3
SHP 4
SHD 5
GND 6
GND 7
GND 8
GND 9
2OASO 10
TO PREAMP BOARD ...CN1
R56 330
IC14
IC12
IC10
R138 NC
R137 220
R136 220
R135 NC
R134 220
R133 NC
C84 NC
C83 NC
L14 NC
L13 8R2
C67 NC
R72 330
R71 NC
R132 220
R131 NC
R130 220
R129 NC
R128 220
R127 NC
C82 10/16
C81 NC
C80 NC
R120 181
L20 8R2
C63 10/16

GRAM OF DRIVE BOARD



IC3
IC1
DRIVE SUB BOARD
IC16
IC7
IC6
IC9
IC10
IC11
IC8
IC15
E2
1 VD
2 HD
3 SHUTC
4 SHUTA
5 SHUTB
6 OBCP
7 GND
8 GND
9 +4R95VD
10 2GASO
11 +15R5V
12 FLD/FRM
13 -10R5V
14 +20R5V
TO MOTHER BOARD ...CN13
TP7 (GND)
TP1: (R XRG)
TP2: (G XRG)
TP3: (B XRG)
-9V
+20V
+18V
+15V
+4.95V
+5V
4
5

<Index>

Drive Board

IC1	C2
IC2	C3
IC3	C5
IC6	A5/B5
IC7	A1,B5
IC8	A5
IC9	A5,B1/C1
IC10	A4,C2/C1
IC11	A4
IC12	A2/A3
IC13	C1,D3
IC15	A5,B3,C2
IC16	D4
IC17	B2
Q1	D2
Q2	B5
Q3	B5
Q4	B5
Q5	B5
Q6	A5
Q7	A5
Q8	A5
Q9	A5
Q10	B4
Q11	B4
Q12	B1
Q13	A1
Q16	B4
Q17	A4
Q18	A4
Q19	A4
Q20	B3
Q21	B3
Q22	A3
Q23	B3
Q24	A3
Q25	B2
Q26	B2
Q27	B2
D1	D3
D2	D3
D3	A4
D4	B4
D5	B6
D6	B2
D7	A2

DRIVE SUB BOARD

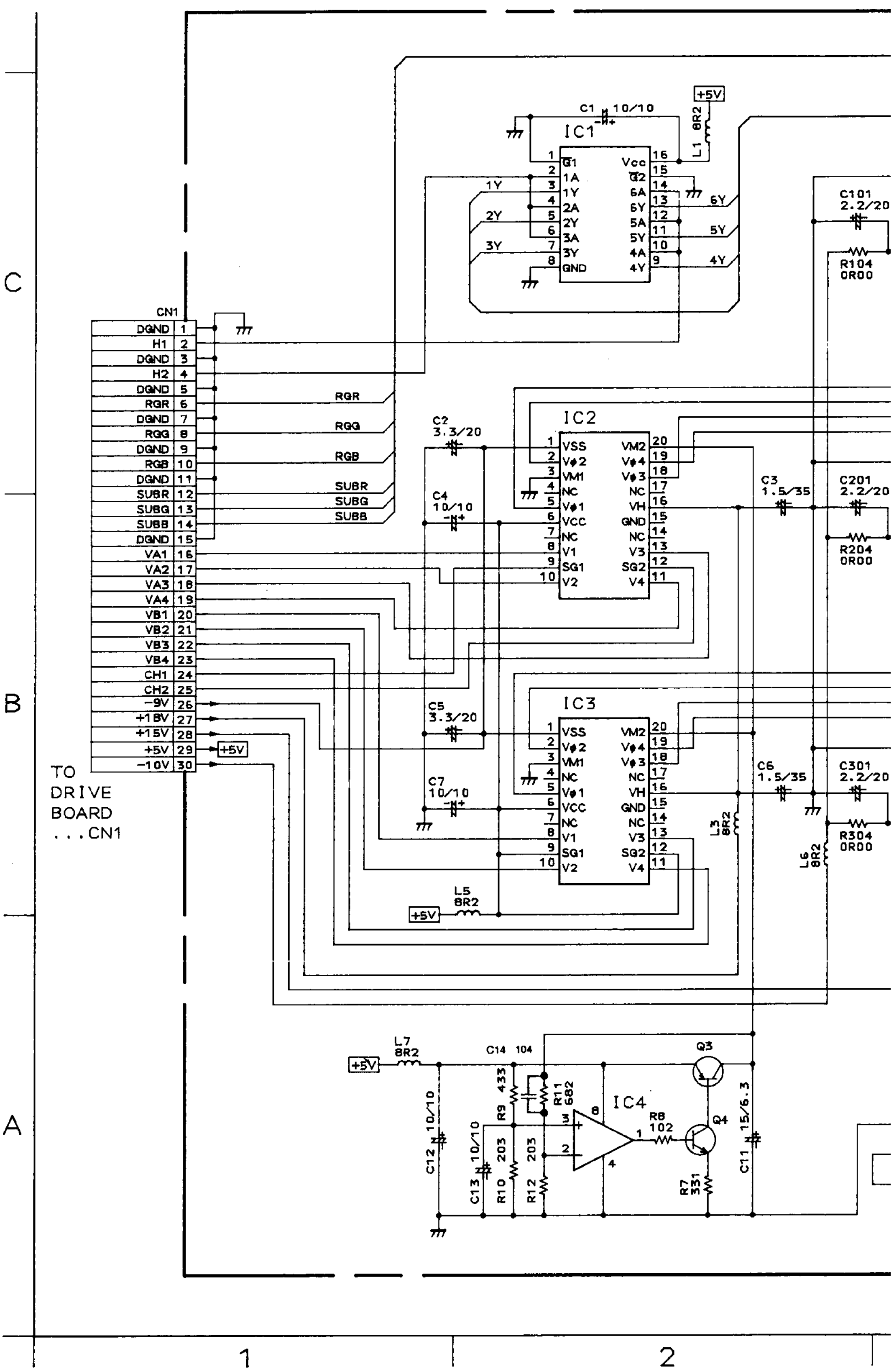
IC1	D6

SCHEMATIC DIAGRAM OI

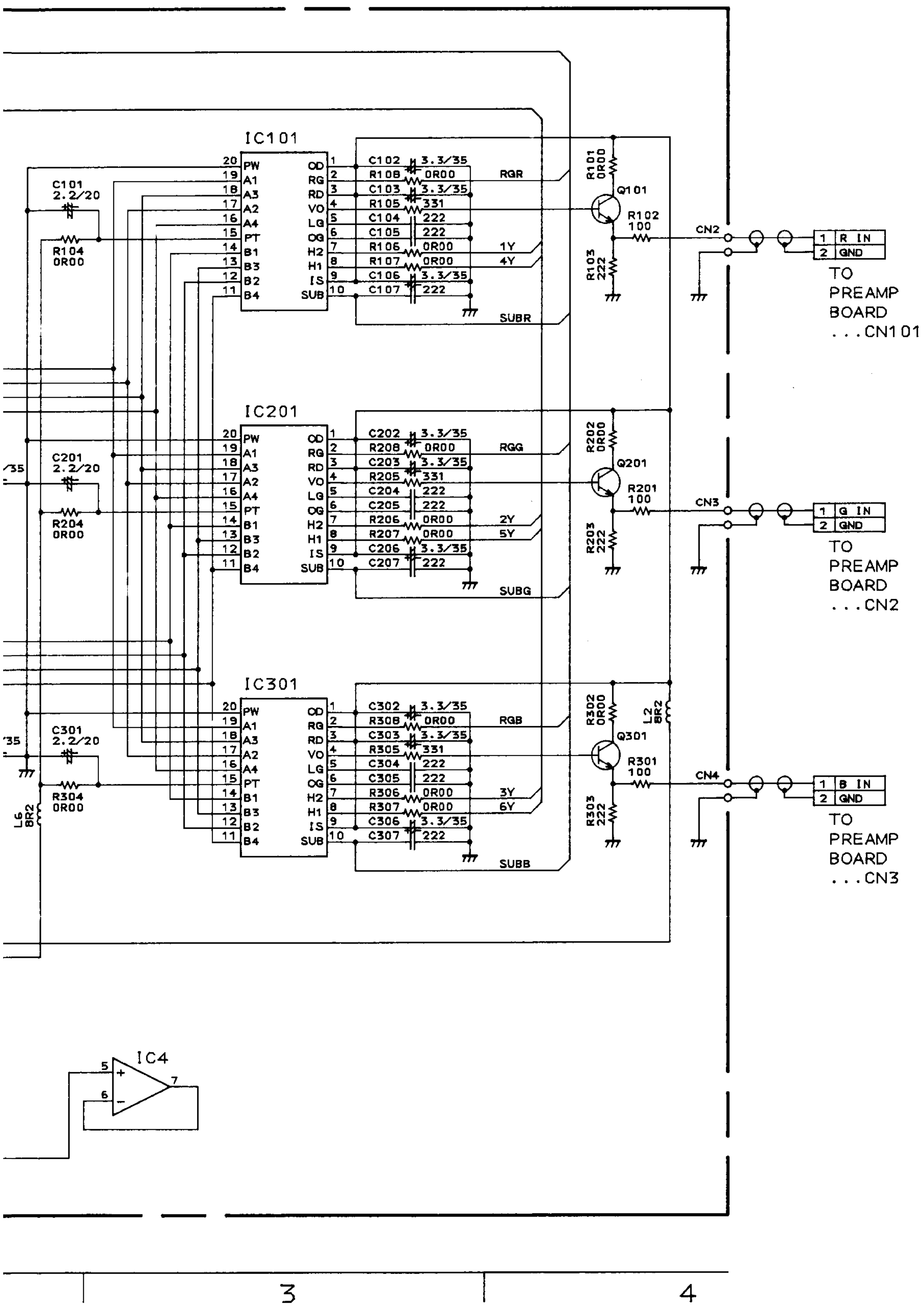
<Index>

SENSOR BOARD

IC1	C2
IC2	C2
IC3	B2
IC4	A2, A3
Q3	A2
Q4	A2
Q101	C4
Q201	B4
Q301	B4


C
B
A
1
2
CN1
DGND 1
H1 2
DGND 3
H2 4
DGND 5
RGR 6
DGND 7
RGG 8
DGND 9
RGB 10
DGND 11
SUBR 12
SUBG 13
SUBB 14
DGND 15
VA1 16
VA2 17
VA3 18
VA4 19
VB1 20
VB2 21
VB3 22
VB4 23
CH1 24
CH2 25
−9V 26
+18V 27
+15V 28
+5V 29
−10V 30
TO DRIVE BOARD ...CN1
RGR
RGG
RGB
SUBR
SUBG
SUBB
+5V
C1 10/10
L1 8R2
IC1
1 G1
2 1A
3 1Y
4 2A
5 2Y
6 3A
7 3Y
8 GND
16 Vcc
15 G2
14 6A
13 6Y
12 5A
11 5Y
10 4A
9 4Y
1Y
2Y
3Y
6Y
5Y
4Y
C101 2.2/20
R104 0R00
IC2
C2 3.3/20
C4 10/10
1 VSS
2 Vφ2
3 VM1
4 NC
5 Vφ1
6 VCC
7 NC
8 V1
9 SG1
10 V2
20 VM2
19 Vφ4
18 Vφ3
17 NC
16 VH
15 GND
14 NC
13 V3
12 SG2
11 V4
C3 1.5/35
C201 2.2/20
R204 0R00
IC3
C5 3.3/20
C7 10/10
C6 1.5/35
C301 2.2/20
R304 0R00
L3 8R2
L6 8R2
L5 8R2
+5V
L7 8R2
C14 104
R9 433
R11 682
C12 10/10
C13 10/10
R10 203
R12 203
IC4
R8 102
Q3
Q4
R7 331
C11 15/6.3

AM OF SENSOR BOARD


IC101
IC201
IC301
PW
A1
A3
A2
A4
PT
B1
B3
B2
B4
OD
RG
RD
VO
LG
OG
H2
H1
IS
SUB
C101 2.2/20
R104 0R00
C201 2.2/20
R204 0R00
C301 2.2/20
R304 0R00
C102 3.3/35
R108 0R00
C103 3.3/35
R105 331
C104 222
C105 222
R106 0R00
R107 0R00
C106 3.3/35
C107 222
C202 3.3/35
R208 0R00
C203 3.3/35
R205 331
C204 222
C205 222
R206 0R00
R207 0R00
C206 3.3/35
C207 222
C302 3.3/35
R308 0R00
C303 3.3/35
R305 331
C304 222
C305 222
R306 0R00
R307 0R00
C306 3.3/35
C307 222
RGR
RGG
RGB
1Y
4Y
2Y
5Y
3Y
6Y
SUBR
SUBG
SUBB
R101 0R00
Q101
R102 100
R103 222
R202 0R00
Q201
R201 100
R203 222
R302 0R00
Q301
R301 100
R303 222
L2 8R2
L6 8R2
CN2
CN3
CN4
1 R IN
2 GND
1 G IN
2 GND
1 B IN
2 GND
TO PREAMP BOARD ...CN101
TO PREAMP BOARD ...CN2
TO PREAMP BOARD ...CN3
IC4
3
4

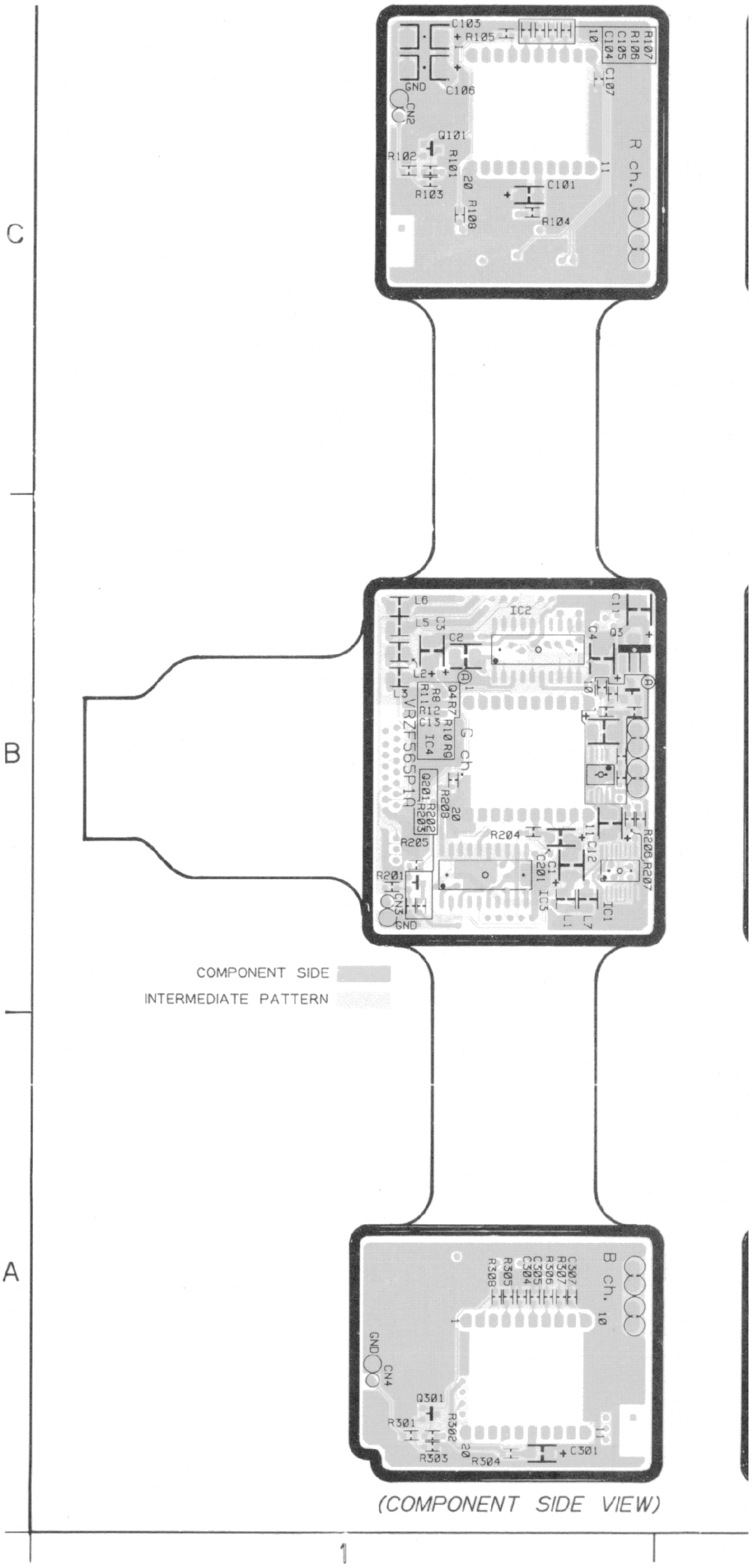
CONDUCTOR VIEW OF

SENSOR B

<Index>

SENSOR BOARD

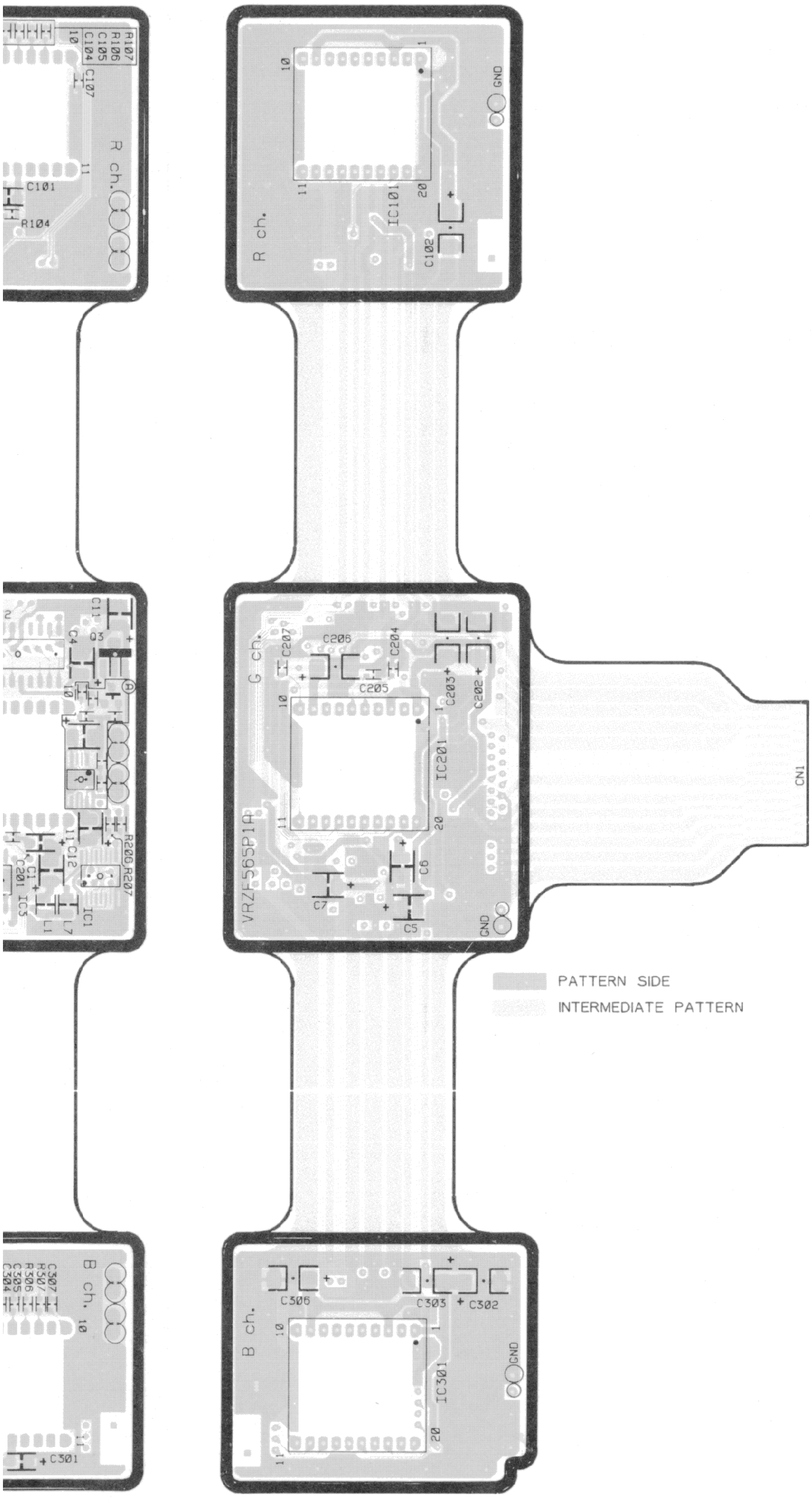
IC1	B1
IC2	B1
IC3	B1
IC4	B1
Q3	B1
Q4	B1
Q101	C1
Q201	B1
Q301	A1


C
B
A
1
R ch.
G ch.
B ch.
GND
CN2
CN3
CN4
IC1
IC2
IC4
Q3
Q4R7
Q101
Q201
Q301
R101
R102
R103
R104
R105
R106
R107
R108
C101
C103
C104
C105
C106
C107
R201
R204
R205
R206
R207
R208
C201
R301
R302
R303
R304
R305
R306
R307
R308
C301
C304
C305
C306
C307
L1
L2
L3
L5
L6
L7
C1
C2
C3
C4
C11
C12
C13
R8
R9
R10
R11
R12
VRZF565P1A
COMPONENT SIDE
INTERMEDIATE PATTERN

(COMPONENT SIDE VIEW)

VIEW OF SENSOR BOARD

SENSOR BOARD


R107
R106
C105
C104
C107
10
11
R ch.
C101
R104
C11
C4
Q3
R200
R207
C12
C201
IC5
C1
L1
L7
IC1
B ch.
C307
R307
R306
C305
C304
C301
10
11
IC101
C102
GND
R ch.
C206
C207
C204
C205
G ch.
C203
C202
IC201
VRZF565P1A
C6
C7
C5
GND
CN1
C306
C303
C302
B ch.
IC301
GND
1
10
11
20

▨ PATTERN SIDE

▨ INTERMEDIATE PATTERN

SIDE VIEW) *(PATTERN SIDE VIEW)*

2

ORDER NO. AVS9501939C8

Service Manual

Colour Video Camera
WV-F565

Vol. 4

Replacement Parts List
Exploded View

Replacement Parts List

- Miscellaneous 4-1
- Drive Board 4-2
- Preamp Board 4-4
- Preprocess Board 4-7
- Sync/Encoder Board 4-12
- Digital Process Board 4-16
- System Control Board 4-18
- Mother Board 4-20
- Side Switch Board 4-23
- Front Board 4-23
- Power Board 4-23
- VTR Start/Stop Board 4-25
- Drive Sub Board 4-25
- Accessory Parts/Packaging Parts 4-25
- Extension Board 4-25

Exploded View 4-26

Panasonic

REPLACEMENT PARTS LIST

Important Notice

1. Components identified by " ⚠ " mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. RTL : Retention Time Limited.

REF.NO.	PART NO.	DESCRIPTION
MISCELLANEOUS		
D101	YWBD607RGBLK	Tally Lamp
MIC1	MC500U01	Mic Unit
CF101	YWRISC4	Filter
CF102	YWSFC6	Filter
CF103	YWTRCN16813	Filter
JK101	YWYAE329800A	Battery Jack
CN101	YWDB201N634	EVF Connector Assy for Mother Board CN9
CN102	YWDBNCSW	BNC Connector
CN103	HR10E10R12S	Lens Connector
CN104	HR10A10R10S	RCB10-pin Connector
CN114	YW1703633	Connector Plug Housing-pin
CN115	YW1721651	Connector Plug Housing
CN116	YW14803493	Connector Holder A
CN117	YW14803500	Connector Holder B
CN118	YW606175	Connector Holder-pin A
CN119	YW606185	Connector Holder-pin B
BI 1	YWF500CNHA04	Internal Wire Assy for JK101 and Mother Board CN19
BI 2	YWF500CHNA05	Internal Wire Assy for Lens Connector CN113 and Mother Board CN15
BI 3	YWF500CNHB10	Internal Wire Assy for Tally Lamp D101 and Mother Board CN11
BI 4	YWF500CNCB17	Internal Wire Assy for Mother Board CN101and Relay Cable
BI 5	YWF500CNHA18	RCB Connector CN120 for Relay Cable
BI 6	YWF500CNCN19	Internal Wire Assy for BNC Connector CN102 and Mother Board CN18
E100	YFV0009-005B	DC Connector Cable
E101	YW0P-80	Cord Clamp
M2	YWV5EA0698A3	Filter Cover
M3	YWV5EA0699A3	Filter Case
M4	YWV5EB1214A1	Right Side Cover
M5	YWV5EB0693A1	Upper Cover
M6	YWV5ED0694A1	Rear Cover
M7	YWV5EE0846A1	Left Side Cover
M8	YWV6EA0174A3	Preset Cover
M9	YWV5RA0249A4	Selection SwitchKnob
M10	YWV5RA0281A4	Shutter Knob
M11	YWV5RA0328A3	Audio Knob
M12	YFV6JA0026A4	Back Light Button
M13	YWV6JA0147A3	Check Button
M14	YWV2EA0188A2	Guide
M15	YWV6JC0056A4	Push Button for VTR
M16	YWV2SA1400A4	Mounting Angle
M17	YWV2SA1407A4	Mounting Angle for DC Jack
M18	YWV2SA1432A4	Mounting Angle
M19	YWV2NA0477A4	Spacer
M20	YWV2HA0840A4	Shield Tube
M21	YWV3CA0175A3	Parts Holder
M22	YWV6GA0127A4	Lock Plate
M23	YWV2FA0465A4	Cushion A for Left Side Cover
M24	YWV2FB0465A4	Cushion B for Left Side Cover
M25	YWV1HA0054A4	Guide Pin
M26	YWV4JA0156B4	Spring for Filter
M27	YWV4JA0285A4	Lock Spring
M28	YWV4JA0360A4	Spring
M29	YWV5VA0079A2	Side Pad
M30	YWV2VA0043A3	Barrier
M31	YWV2VA0044A4	Shield Plate
M32	YWV7SA0990A4	Label
M33	YWV7MA0468A4	Safety Label
M34	YWV7PA0070A4	Badge
M35	YWV7QB2887A3	Priset Panel
M36	YWV7QA3471A3	Main Label
M37	YWV7SA2092A3	Label
M38	YWV2KD0592A1	Chassis
M40	YWV2GA0065A4	Cord Clamp
M41	YWV6JA0041A4	Button
M42	YWV2EA0189A2	Guide
M43	YWV2SB1400A4	Mounting Angle for Guide
M44	CAP410A	Cap
M45	YWV7DA0395A3	Heat Sink A
M46	YWV7DA0399A3	Heat Sink B
M47	YWV7DA0400A3	Heat Sink C
M49	YWV4FA0028B4	Mounting Angle Stopper
M50	YWV2KA0591A1	Chassis
M51	YWV0EA0226AN	Bayonet Mount
M52	YWV0EA0336AN	Head Optical Assy
M53	YWV0EA0335AN	Filter Disk Assy
M54	YWV2EA0051A4	Guide
M55	YWV1HA0025A4	Ball Pin
M56	YWV1EA0110A4	Special Screw
M57	YWV4JA0146A4	Spring
M58	YWV5EA1215A1	VF Bracket
M59	YWV2JA0087A3	Bracing Strut

REF.NO.	PART NO.	DESCRIPTION
M60	YWV4JA0366A4	Spring
M61	YWV1EA0219A4	Special Screw
M62	YWV1FA0063A4	Lock Nut
M63	YFV4SA0002A4	Roller
M64	YWV5WA1455A3	Shoulder Panel
M65	YWV5EA1010A4	RCB Cover
M66	YWV5EA1216A1	Shoulder Base
M67	YWV5EA1217A2	Front Lock
M68	YWV5EA1218A2	Rear Lock
M69	YWV5EA1289A3	Insert Cover
M70	YWV5VA0080A1	Shoulder Pad
M71	YWV2EA0193A4	Shoulder Guide
M72	YWV6GA0232A4	Plate
M73	YWV7SA1634A4	Microprosecer System Label
M75	YFV7MA0099A4	Safety Label
M81	YWV2SA2418A3	Mounting Angle
M82	YWV1HA0079A4	Heat Sink -pin
M83	YWV7DA0252A4	Heat Sink Ring
M84	YWV7DA0199A4	Heat Sink Spring
M91	YWV2HA1214A4	Shield Parts
M92	YWV2SA2793A4	Mounting Angle
M93	YWV1KA0141A4	Washer

DRIVE BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB2 (RTL)	YWVKBF565E1A	Printed Circuit Board Assy	
IC1	MN53020XXF	IC	
IC2	MN53003XCU	IC	
IC3	YWCXD2404R	IC	
IC6	YWNJM2902VT1	IC	
IC7	NJM2904D	IC	
IC8	YWMC74HC74AF	IC	
IC9	YWMC74HC32AF	IC	
IC10	YWMC74HC08AF	IC	
IC11	MC74HC157AF	IC	
IC12	MC74HC4050FR	IC	
IC13	YWMC74HC367F	IC	
IC15	YWUPD74HC04G	IC	
IC16	MN13821M	IC	
IC17	YWMC74HC74AF	IC	
Q1	2SK853	Transistor	
Q2	2SB1386	Transistor	
Q3	2SC4081	Transistor	
Q4	2SB1386	Transistor	
Q5	2SC4081	Transistor	
Q6	2SB1386	Transistor	
Q7	2SC4081	Transistor	
Q8	2SB1386	Transistor	
Q9	2SC4081	Transistor	
Q10	2SD2150	Transistor	
Q11	2SA1576	Transistor	
Q12	2SD2150	Transistor	
Q13	2SA1576	Transistor	
Q16	2SA1462	Transistor	
Q17	2SC3735	Transistor	
Q18-20	2SA1576	Transistor	
Q21	2SD1820A-QR	Transistor	
Q22,23	2SB1219A-RS	Transistor	
Q24	2SD1820A-QR	Transistor	
Q25-27	2SC4081	Transistor	
D1,2	MA372	Diode	
D3	MA159	Diode	
D4,6	YWIMN10	Diode	
D7	YWDA204K	Diode	
R11,12	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R13	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R14	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R15	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R16	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R17,18	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R19	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R22,23	ERJ3GEYJ220	Carbon	22 ohms 1/16W
R25	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R27	YWR0816Q620D	Metal	62 ohms 1/16W
R28	YWR0816P241D	Metal	240 ohms 1/16W
R29	YWR0816P121D	Metal	120 ohms 1/16W
R30,31	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R32	ERJ3GEYJ220	Carbon	22 ohms 1/16W
R34-36	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R38	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R42	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R44,47	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R56	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R57,66	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R72	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R75,77	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R79-81	ERJ3GEYJ910	Carbon	91 ohms 1/16W
R85	YWR0816P102D	Metal	1K ohms 1/16W
R86	YWR0816P303D	Metal	30K ohms 1/16W
R87-89	YWR0816R433D	Metal	43K ohms 1/16W
R90	YWR0816P102D	Metal	1K ohms 1/16W
R91	YWR0816R913D	Metal	91K ohms 1/16W
R92	YWR0816P163D	Metal	16K ohms 1/16W
R93	YWR0816R913D	Metal	91K ohms 1/16W
R94	YWR0816P153D	Metal	15K ohms 1/16W
R95	YWR0816P102D	Metal	1K ohms 1/16W
R96	YWR0816R753D	Metal	75K ohms 1/16W
R97	YWR0816P183D	Metal	18K ohms 1/16W
R98	YWR0816R913D	Metal	91K ohms 1/16W
R99	YWR0816P163D	Metal	16K ohms 1/16W
R100	YWR0816P102D	Metal	1K ohms 1/16W
R101	YWR0816R393D	Metal	39K ohms 1/16W
R102	YWR0816P133D	Metal	13K ohms 1/16W
R103	YWR0816R473D	Metal	47K ohms 1/16W
R104	YWR0816P153D	Metal	15K ohms 1/16W
R105	YWR0816P222D	Metal	2.2K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION
R106	YWR0816P183D	Metal 18K ohms 1/16W
R107	YWR0816P303D	Metal 30K ohms 1/16W
R108	YWR0816P203D	Metal 20K ohms 1/16W
R109	YWR0816P303D	Metal 30K ohms 1/16W
R111	ERJ3GEYJ105	Carbon 1M ohms 1/16W
R112-114	ERJ3GEYJ104	Carbon 100K ohms 1/16W
R115-117	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R120	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R122	ERJ3GEYJ113	Carbon 11K ohms 1/16W
R123	ERJ3GEYJ332	Carbon 3.3K ohms 1/16W
R124	ERJ3GEYJ562	Carbon 5.6K ohms 1/16W
R125,126	ERJ3GEYJ150	Carbon 15 ohms 1/16W
R128,130	ERJ3GEYJ220	Carbon 22 ohms 1/16W
R132,134	ERJ3GEYJ220	Carbon 22 ohms 1/16W
R136,137	ERJ3GEYJ220	Carbon 22 ohms 1/16W
R142	YWR0816R393D	Metal 39K ohms 1/16W
R143	YWR0816P153D	Metal 15K ohms 1/16W
R144,145	YWR0816R433D	Metal 43K ohms 1/16W
R146	YWR0816R393D	Metal 39K ohms 1/16W
R147	YWR0816R433D	Metal 43K ohms 1/16W
R148	YWR0816P102D	Metal 1K ohms 1/16W
R162	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R163,164	YWR0816P201D	Metal 200 ohms 1/16W
R165	YWR0816Q300D	Metal 30 ohms 1/16W
R169	ERJ3GEYJ472	Carbon 4.7K ohms 1/16W
R170	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R172-181	ERJ3GEYJ330	Carbon 33 ohms 1/16W
R182-187	ERJ3GEYJ331	Carbon 330 ohms 1/16W
R188-190	ERJ3GEYJ105	Carbon 1M ohms 1/16W
R193-196	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R198-200	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R202,203	ERJ3GEYJ680	Carbon 68 ohms 1/16W
R204	ERJ3GEYJ220	Carbon 22 ohms 1/16W
R207,208	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R210	ERJ3GEYJ330	Carbon 33 ohms 1/16W
VR1-3	EVM7JGA30B15	Variable Resistor 100K ohms
VR4-6	EVM7JSW30B25	Variable Resistor 200K ohms
C7	YW5F104Z2VB	Ceramic 0.1 µF
C8	YWSK1C106KRC	Electrolytic 10 µF 16V
C9	SK20J106KRB	Electrolytic 10 µF 6.3V
C10	YW5X332K5VB	Ceramic 3300 pF
C11,12	YW5CH820J5VB	Ceramic 82 pF
C13	YW5F104Z2VB	Ceramic 0.1 µF
C14	YWSK1C106KRC	Electrolytic 10 µF 16V
C15	YW5F104Z2VB	Ceramic 0.1 µF
C16-21	YW5CH560J5VB	Ceramic 56 pF
C22	YW5F104Z2VB	Ceramic 0.1 µF
C23,25	YWSK1C106KRC	Electrolytic 10 µF 16V
C26,27	YW5F104Z2VB	Ceramic 0.1 µF
C28	YWSK1C106KRC	Electrolytic 10 µF 16V
C29	YWRVS0J470M	Electrolytic 47 µF 6.3V
C30	SK31A106KRB	Electrolytic 10 µF 10V
C31	YW5X103K2VB	Ceramic 0.01 µF
C32	SK1E106KRD0	Electrolytic 10 µF 25V
C33	YWRJ335V470M	Electrolytic 47 µF 35V

REF.NO.	PART NO.	DESCRIPTION
C35	SK31A106KRB	Electrolytic 10 µF 10V
C36	YW5X103K2VB	Ceramic 0.01 µF
C37	YWSK1C106KRC	Electrolytic 10 µF 16V
C38	YWRJ316V101M	Electrolytic 100 µF 16V
C39	SK31A106KRB	Electrolytic 10 µF 10V
C40	YW5X103K2VB	Ceramic 0.01 µF
C41	YWRJ325V101M	Electrolytic 100 µF 25V
C42	SK31A106KRB	Electrolytic 10 µF 10V
C43	YW5X103K2VB	Ceramic 0.01 µF
C44	ECA1EFQ820	Electrolytic 82 µF 25V
C45	SK31A106KRB	Electrolytic 10 µF 10V
C46	YW5X103K2VB	Ceramic 0.01 µF
C47	YWRVS0J101M	Electrolytic 10 µF 6.3V
C48	YWSK1C106KRC	Electrolytic 10 µF 16V
C49	YW5CH220J5VB	Ceramic 22 pF
C50	YW5CH181J5VB	Ceramic 180 pF
C51	YWSK1C106KRC	Electrolytic 10 µF 16V
C52-54	YW5F104Z2VB	Ceramic 0.1 µF
C55-57	YWRVS1C100M	Electrolytic 10 µF 16V
C58-60	YW5F104Z2VB	Ceramic 0.1 µF
C61-64	YWSK1C106KRC	Electrolytic 10 µF 16V
C70	SK1E106KRD0	Electrolytic 10 µF 25V
C71	YWRVS1H100M	Electrolytic 10 µF 50V
C72,73	YW5X103K2VB	Ceramic 0.01 µF
C74-76	YWRVS1V4R7M	Electrolytic 4.7 µF 35V
C77-79	YWRVS1E100M	Electrolytic 10 µF 25V
C82	YWSK1C106KRC	Electrolytic 10 µF 16V
C86	SK31A106KRB	Electrolytic 10 µF 10V
C87	YW5X103K2VB	Ceramic 0.01 µF
C88	YWRJ316V101M	Electrolytic 100 µF 16V
C91-94	YW5F104Z2VB	Ceramic 0.1 µF
C95,96	YWRVS1C470M	Electrolytic 47 µF 16V
C97	YWRVS1V220M	Electrolytic 22 µF 35V
C98,99	YWRVS1E330M	Electrolytic 33 µF 25V
C100-104	YW5F104Z2VB	Ceramic 0.1 µF
C105	YWSK1C106KRC	Electrolytic 10 µF 16V
C106	YW5X103K2VB	Ceramic 0.01 µF
L1	EIC4EJ010E	Coil 1 µH
L5,6	ELJFC8R2MF	Coil 8.2 µH
L9-13	ELJFC8R2MF	Coil 8.2 µH
L16-20	ELJFC8R2MF	Coil 8.2 µH
CF2	NFM41R00C101	Filter
CN1	YW522053090	30-pin Connector
CN2	PS10SDD4TS11	10-pin Connector
E1	YWF500CNBB06	Internal Wire Assy for Mother Board CN102
E2,3	YWF500CNBI15	Internal Wire Assy for Mother Board CN 13
TP1-8	YWRCT2125TPV	Test-Pin

REF.NO.	PART NO.	DESCRIPTION
	PRE AMP BOARD	
PCB3 (R-L)	YWVKCF565E1A	Printed Circuit Board Assy
IC1	YWUPC4062G2	IC
IC101,201	YWTC4W53FUL	IC
IC301	YWTC4W53FUL	IC
Q1	2SA1532-CD	Transistor
Q2	2SB1132-Q	Transistor
Q3	2SC4081	Transistor
Q4	2SD1664	Transistor
Q5	2SA1576	Transistor
Q101	2SA1532-CD	Transistor
Q102	3SK157	FET
Q103	2SC3931-CD	Transistor
Q104	2SA1532-CD	Transistor
Q105	3SK157	FET
Q106	2SC3931-CD	Transistor
Q107,108	2SC4081	Transistor
Q109,110	2SC3931-CD	Transistor
Q111-113	2SA1532-CD	Transistor
Q114	2SC3931-CD	Transistor
Q115	2SA1532-CD	Transistor
Q116,117	2SC3931-CD	Transistor
Q118	2SA1532-CD	Transistor
Q119	3SK157	FET
Q120,121	2SC3931-CD	Transistor
Q122,123	2SA1532-CD	Transistor
Q201	2SA1532-CD	Transistor
Q202	3SK157	FET
Q203	2SC3931-CD	Transistor
Q204	2SA1532-CD	Transistor
Q205	3SK157	FET
Q206	2SC3931-CD	Transistor
Q207,208	2SC4081	Transistor
Q209,210	2SC3931-CD	Transistor
Q211-213	2SA1532-CD	Transistor
Q214	2SC3931-CD	Transistor
Q215	2SA1532-CD	Transistor
Q216,217	2SC3931-CD	Transistor
Q218	2SA1532-CD	Transistor
Q219	3SK157	FET
Q220,221	2SC3931-CD	Transistor
Q222,223	2SA1532-CD	Transistor
Q301	2SA1532-CD	Transistor
Q302	3SK157	FET
Q303	2SC3931-CD	Transistor
Q304	2SA1532-CD	Transistor
Q305	3SK157	FET
Q306	2SC3931-CD	Transistor
Q307,308	2SC4081	Transistor
Q309,310	2SC3931-CD	Transistor
Q311-313	2SA1532-CD	Transistor
Q314	2SC3931-CD	Transistor
Q315	2SA1532-CD	Transistor
Q316,317	2SC3931-CD	Transistor
Q318	2SA1532-CD	Transistor
Q319	3SK157	FET
Q320,321	2SC3931-CD	Transistor
Q322,323	2SA1532-CD	Transistor
Q324	2SC3931-CD	Transistor
R1	ERJ3GEYJ153	Carbon 15K ohms 1/16W
R2	ERJ3GEYJ183	Carbon 18K ohms 1/16W
R3	ERJ3GEYJ332	Carbon 3.3K ohms 1/16W
R4	ERJ3GEYJ331	Carbon 330 ohms 1/16W
R5	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R6	YWR0816P113D	Metal 11K ohms 1/16W
R7	YWR0816P123D	Metal 12K ohms 1/16W
R8,9	YWR0816P103D	Metal 10K ohms 1/16W
R10	ERJ3GEYJ331	Carbon 330 ohms 1/16W
R11	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R12	YWR0816P912D	Metal 9.1K ohms 1/16W
R13	YWR0816P123D	Metal 12K ohms 1/16W
R14,15	YWR0816P103D	Metal 10K ohms 1/16W
R101	ERJ3GEYJ241	Carbon 240 ohms 1/16W
R102	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R103	ERJ3GEYJ242	Carbon 2.4K ohms 1/16W
R104	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R105,106	ERJ3GEYJ153	Carbon 15K ohms 1/16W
R107	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R108	ERJ3GEYJ472	Carbon 4.7K ohms 1/16W
R109	ERJ3GEYJ153	Carbon 15K ohms 1/16W
R110	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R111	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R112	ERJ3GEYJ202	Carbon 2K ohms 1/16W
R113	ERJ3GEYJ472	Carbon 4.7K ohms 1/16W
R114	ERJ3GEYJ330	Carbon 33 ohms 1/16W
R115	ERJ3GEYJ153	Carbon 15K ohms 1/16W
R116	ERJ3GEYJ151	Carbon 150 ohms 1/16W
R117	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R118	ERJ3GEYJ754	Carbon 75K ohms 1/16W
R119	ERJ3GEYJ272	Carbon 2.7K ohms 1/16W
R120	ERJ3GEYJ221	Carbon 220 ohms 1/16W
R121	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R122	ERJ3GEYJ752	Carbon 7.5K ohms 1/16W
R123	ERJ3GEYJ561	Carbon 560 ohms 1/16W
R124	ERJ3GEYJ153	Carbon 15K ohms 1/16W
R125	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R126	ERJ3GEYJ562	Carbon 5.6K ohms 1/16W
R127	ERJ3GEYJ751	Carbon 750 ohms 1/16W
R128	ERJ3GEYJ752	Carbon 7.5K ohms 1/16W
R129	ERJ3GEYJ562	Carbon 5.6K ohms 1/16W
R130	ERJ3GEYJ152	Carbon 1.5K ohms 1/16W
R131,132	ERJ3GEYJ331	Carbon 330 ohms 1/16W
R133	ERJ3GEYJ822	Carbon 8.2K ohms 1/16W
R134	ERJ3GEYJ222	Carbon 2.2K ohms 1/16W
R135,136	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R137	ERJ3GEYJ153	Carbon 15K ohms 1/16W
R138	ERJ3GEYJ472	Carbon 4.7K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R139	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R140	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R141	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R142	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R143	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R144	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R145	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R146	ERJ3GEYJ393	Carbon	39K ohms 1/16W
R147,148	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R149	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R152	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R201	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R202	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R203	ERJ3GEYJ242	Carbon	2.4K ohms 1/16W
R204	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R205,206	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R207	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R208	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R209	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R210	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R211	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R212	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R213	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R214	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R215	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R216	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R217	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R218	ERJ3GEYJ754	Carbon	750K ohms 1/16W
R219	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R220	ERJ3GEYJ271	Carbon	270 ohms 1/16W
R221	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R222	ERJ3GEYJ752	Carbon	7.5K ohms 1/16W
R223	ERJ3GEYJ561	Carbon	560 ohms 1/16W
R224	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R225	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R226	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R227	ERJ3GEYJ751	Carbon	750 ohms 1/16W
R228	ERJ3GEYJ752	Carbon	7.5K ohms 1/16W
R229	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R230	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R231,232	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R233	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R234	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R235,236	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R237	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R238	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R239	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R240	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R241	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R242	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R243	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R244	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R245	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R246	ERJ3GEYJ393	Carbon	39K ohms 1/16W
R247,248	ERJ3GEYJ331	Carbon	330 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R249	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R252	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R301	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R302	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R303	ERJ3GEYJ242	Carbon	2.4K ohms 1/16W
R304	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R305,306	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R307	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R308	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R309	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R310	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R311	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R312	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R313	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R314	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R315	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R316	ERJ3GEYJ151	Carbon	150 ohms 1/16W
R317	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R318	ERJ3GEYJ754	Carbon	750K ohms 1/16W
R319	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R320	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R321	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R322	ERJ3GEYJ752	Carbon	7.5K ohms 1/16W
R323	ERJ3GEYJ561	Carbon	560 ohms 1/16W
R324	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R325	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R326	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R327	ERJ3GEYJ751	Carbon	750 ohms 1/16W
R328	ERJ3GEYJ752	Carbon	7.5K ohms 1/16W
R329	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R330	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R331,332	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R333	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R334	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R335,336	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R337	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R338	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R339	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R340	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R341	ERJ3GEYJ330	Carbon	33 ohms 1/16W
R342	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R343	ERJ3GEYJ202	Carbon	2K ohms 1/16W
R344	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R345	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R346	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R347,348	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R349	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R350	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R351	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R352	ERJ3GEY0R00	Carbon	0 ohms 1/16W
VR101	YWST3A101	Variable Resistor	100 ohms
VR102	YWST3A502	Variable Resistor	5K ohms
VR201	YWST3A101	Variable Resistor	100 ohms
VR202	YWST3A502	Variable Resistor	5K ohms
VR301	YWST3A101	Variable Resistor	100 ohms

REF.NO.	PART NO.	DESCRIPTION
VR302	YWST3A502	Variable Resistor 5K ohms
C1	YWRVS1C100M	Electrolytic 10 µF 16V
C2	YWRJ310V471M	Electrolytic 470 µF 10V
C3	YWRVS1C100M	Electrolytic 10 µF 16V
C4	YWRJ36V471	Electrolytic 470 µF 36V
C5	YWRVS1C100M	Electrolytic 10 µF 16V
C101	YW5CH180J5VB	Ceramic 18 pF
C102	YW5CH150J5VB	Ceramic 15 pF
C103	YW5CH180J5VB	Ceramic 18 pF
C104	YW5F104Z2VB	Ceramic 0.1 µF
C105	YWRVS1C100M	Electrolytic 10 µF 16V
C106	YWSK1E155MRB	Electrolytic 1.5 µF 25V
C107	YW5CH390J5VB	Ceramic 39 pF
C108	YWRVS1C100M	Electrolytic 10 µF 16V
C109	YW5F104Z2VB	Ceramic 0.1 µF
C110	YW5CH220J5VB	Ceramic 22 pF
C111	YWRVS1C470M	Electrolytic 47 µF 16V
C112	YW5CH330J5VB	Ceramic 33 pF
C114	YWRVS1C100M	Electrolytic 10 µF 16V
C115,116	YW5F104Z2VB	Ceramic 0.1 µF
C118	YW5CH220J5VB	Ceramic 22 pF
C119	YWRVS1C330M	Electrolytic 33 µF 16V
C201	YW5CH180J5VB	Ceramic 18 pF
C202	YW5CH150J5VB	Ceramic 15 pF
C203	YW5CH180J5VB	Ceramic 18 pF
C204	YW5F104Z2VB	Ceramic 0.1 µF
C205	YWRVS1C100M	Electrolytic 10 µF 16V
C206	YWSK1E155MRB	Electrolytic 1.5 µF 25V
C207	YW5CH390J5VB	Ceramic 39 pF
C208	YWRVS1C100M	Electrolytic 10 µF 16V
C209	YW5F104Z2VB	Ceramic 0.1 µF
C210	YW5CH220J5VB	Ceramic 22 pF
C211	YWRVS1C470M	Electrolytic 47 µF 16V
C212	YW5CH330J5VB	Ceramic 33 pF
C214	YWRVS1C100M	Electrolytic 10 µF 16V
C215,216	YW5F104Z2VB	Ceramic 0.1 µF
C218	YW5CH220J5VB	Ceramic 22 pF
C219	YWRVS1C330M	Electrolytic 33 µF 16V
C301	YW5CH180J5VB	Ceramic 18 pF
C302	YW5CH150J5VB	Ceramic 15 pF
C303	YW5CH180J5VB	Ceramic 18 pF
C304	YW5F104Z2VB	Ceramic 0.1 µF
C305	YWRVS1C100M	Electrolytic 10 µF 16V
C306	YWSK1E155MRB	Electrolytic 1.5 µF 25V
C307	YW5CH390J5VB	Ceramic 39 pF
C308	YWRVS1C100M	Electrolytic 10 µF 16V
C309	YW5F104Z2VB	Ceramic 0.1 µF
C310	YW5CH220J5VB	Ceramic 22 pF
C311	YWRVS1C470M	Electrolytic 47 µF 16V
C312	YW5CH330J5VB	Ceramic 33 pF

REF.NO.	PART NO.	DESCRIPTION
C314	YWRVS1C100M	Electrolytic 10 µF 16V
C315,316	YW5F104Z2VB	Ceramic 0.1 µF
C318	YW5CH220J5VB	Ceramic 22 pF
C319	YWRVS1C330M	Electrolytic
CT101,201	TZBX4R500BAT	Trimmer Capacitor 50 pF
CT301	TZBX4R500BAT	Trimmer Capacitor 50 pF
L101,201	YWNL322R7J	Coil 2.7 µH
L301	YWNL322R7J	Coil 2.7 µH
CF102	YWCY4W618	Filter
CF103	YWCY4W092	Filter
CF202	YWCY4W618	Filter
CF203	YWCY4W092	Filter
CF302	YWCY4W618	Filter
CF303	YWCY4W092	Filter
CN1	10PED4T1PN1	Connector
CN101	YWE021200002	Connector
CN201	YWE021200000	Connector
CN301	YWE021200001	Connector
E1	YWF500CNBI14	Internal Wire
TP1,101	YWRCT2125TPV	Test- Pin
TP102,201	YWRCT2125TPV	Test- Pin
TP202,301	YWRCT2125TPV	Test- Pin
TP302	YWRCT2125TPV	Test- Pin
M48	YWV6GA0157A4	Stopper Angle

PREPROCESS BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB4 (RTL)	YWVKBF565E2A	Printed Circuit Board Assy
IC1	YWNJM3403AM	IC
IC2	NJM2904M	IC
IC7	YWNJM3403AM	IC
IC8	YWNJM2902VT1	IC
IC9	YWUPD4050BG	IC
IC10,12	YWUPD4053BG	IC
IC101	UPD74HC4053G	IC
IC102	YWNJM2902VT1	IC
IC103	AN90B01S	IC
IC104,105	YWUPD4053BG	IC
IC106	NJM2904M	IC
IC107	YWTC4W53FUL	IC
IC301	UPD74HC4053G	IC
IC302	YWNJM2902VT1	IC
IC303	AN90B01S	IC
IC304,305	YWUPD4053BG	IC
IC306	NJM2904M	IC
IC307	YWTC4W53FUL	IC
IC501	UPD74HC4053G	IC
IC502	YWNJM2902VT1	IC
IC503	AN90B01S	IC
IC504,505	YWUPD4053BG	IC
IC506	NJM2904M	IC
IC507	YWTC4W53FUL	IC
Q1	2SB1132-Q	Transistor
Q2	2SD1664	Transistor
Q3	2SB1132-Q	Transistor
Q4	2SA1576	Transistor
Q12	2SC4081	Transistor
Q13	2SB1132-Q	Transistor
Q16	2SC4081	Transistor
Q17	2SA1576	Transistor
Q101,102	2SC4099	Transistor
Q104	2SC4099	Transistor
Q105,110	UMX2	Transistor
Q111,112	2SD1823-RS	Transistor
Q113	XN6435	Transistor
Q116	2SK106945	FET
Q117	2SC4099	Transistor
Q118	XP4601	Transistor
Q120-125	XN6435	Transistor
Q126	2SC4099	Transistor
Q127	XN6435	Transistor
Q128	2SC4099	Transistor
Q130	UMX2	Transistor
Q131	2SA1576	Transistor
Q132	XP4601	Transistor
Q139	2SK106945	FET
Q301,302	2SC4099	Transistor
Q304	2SC4099	Transistor
Q305,310	UMX2	Transistor
Q311,312	2SD1823-RS	Transistor
Q313	XN6435	Transistor
Q316	2SK106945	FET
Q317	2SC4099	Transistor
Q318	XP4601	Transistor
Q320-325	XN6435	Transistor
Q326	2SC4099	Transistor
Q327	XN6435	Transistor
Q328	2SC4099	Transistor
Q330	UMX2	Transistor
Q331	2SA1576	Transistor
Q332	XP4601	Transistor
Q339	2SK106945	FET
Q501,502	2SC4099	Transistor
Q504	2SC4099	Transistor
Q505,510	UMX2	Transistor
Q511,512	2SD1823-RS	Transistor
Q513	XN6435	Transistor
Q516	2SK106945	FET
Q517	2SC4099	Transistor
Q518	XP4601	Transistor
Q520-525	XN6435	Transistor
Q526	2SC4099	Transistor
Q527	XN6435	Transistor
Q528	2SC4099	Transistor
Q530	UMX2	Transistor
Q531	2SA1576	Transistor
Q532	XP4601	Transistor
Q539	2SK106945	FET
D2	YWDA114	Diode
D101	MA3051	Diode
D102,103	YWDA114	Diode
D301	MA3051	Diode
D302,303	YWDA114	Diode
D501	MA3051	Diode
D502,503	YWDA114	Diode
R1-3	YWR0816R473D	Metal 47K ohms 1/16W
R4	YWR0816R513D	Metal 51K ohms 1/16W
R5,6	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R7-9	YWR0816R473D	Metal 47K ohms 1/16W
R10	YWR0816R393D	Metal 39K ohms 1/16W
R11,12	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R13-15	YWR0816R473D	Metal 47K ohms 1/16W
R16	YWR0816R513D	Metal 51K ohms 1/16W
R17,18	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R19	YWR0816R473D	Metal 47K ohms 1/16W
R20	YWR0816P562D	Metal 5.6K ohms 1/16W
R21	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R22	ERJ3GEYJ332	Carbon 3.3K ohms 1/16W
R27	YWR0816R473D	Metal 47K ohms 1/16W
R28	YWR0816R513D	Metal 51K ohms 1/16W
R51	ERJ3GEYJ104	Carbon 100K ohms 1/16W
R60	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R61	ERJ3GEYJ104	Carbon 100K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R62	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R63	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R68	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R69	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R70	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R71	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R72	YWR0816P222D	Metal	2.2K ohms 1/16W
R73	YWR0816P102D	Metal	1K ohms 1/16W
R74	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R75	YWR0816P391D	Metal	390 ohms 1/16W
R76	YWR0816Q470D	Metal	47 ohms 1/16W
R77,78	YWR0816P121D	Metal	120 ohms 1/16W
R79	YWR0816Q680D	Metal	68 ohms 1/16W
R80	YWR0816Q470D	Metal	47 ohms 1/16W
R81	YWR0816Q220D	Metal	22 ohms 1/16W
R82	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R83	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R84	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R85	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R86	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R87,88	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R89	ERJ3GEYJ334	Carbon	330K 1/16W
R90	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R91	ERJ3GEYJ334	Carbon	330K 1/16W
R92	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R93	ERJ3GEYJ244	Carbon	240K ohms 1/16W
R94	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R95	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R99,100	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R101	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R102	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R104,105	YWR0816P202D	Metal	2K ohms 1/16W
R106	YWR0816P331D	Metal	330 ohms 1/16W
R107	YWR0816P332D	Metal	3.3K ohms 1/16W
R108	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R110	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R114	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R117	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R118	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R122	ERJ3GEYJ683	Carbon	68K ohms 1/16W
R131	YWR0816P222D	Metal	2.2K ohms 1/16W
R132	YWR0816P472D	Metal	4.7K ohms 1/16W
R133	YWR0816P153D	Metal	15K ohms 1/16W
R134,136	YWR0816P102D	Metal	1K ohms 1/16W
R137	YWR0816P103D	Metal	10K ohms 1/16W
R138,139	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R142	YWR0816P102D	Metal	1K ohms 1/16W
R143-146	YWR0816P101D	Metal	100 ohms 1/16W
R147	YWR0816P302D	Metal	3K ohms 1/16W
R148	YWR0816P202D	Metal	2K ohms 1/16W
R149	YWR0816P681D	Metal	680 ohms 1/16W
R150,151	YWR0816P331D	Metal	330 ohms 1/16W
R152	ERJ3GEYJ334	Carbon	330K ohms 1/16W
R153	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R154	ERJ3GEYJ334	Carbon	330K ohms 1/16W
R155	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R156	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R157	YWR0816R363D	Metal	36K ohms 1/16W
R158	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R159	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R160	YWR0816P471D	Metal	470 ohms 1/16W
R161	YWR0816P221D	Metal	220 ohms 1/16W
R162	YWR0816P471D	Metal	470 ohms 1/16W
R163	YWR0816P332D	Metal	3.3K ohms 1/16W
R164	YWR0816P472D	Metal	4.7K ohms 1/16W
R165	YWR0816P103D	Metal	10K ohms 1/16W
R166	YWR0816P302D	Metal	3K ohms 1/16W
R167	YWR0816P102D	Metal	1K ohms 1/16W
R169	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R171	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R172	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R173	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R174	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R175	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R176-179	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R180	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R181	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R184-187	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R188	YWR0816R473D	Metal	47K ohms 1/16W
R189	YWR0816P223D	Metal	22K ohms 1/16W
R190	YWR0816P272D	Metal	2.7K ohms 1/16W
R191	YWR0816P391D	Metal	390 ohms 1/16W
R192	YWR0816R683D	Metal	68K ohms 1/16W
R193	YWR0816P103D	Metal	10K ohms 1/16W
R194	YWR0816R683D	Metal	68K ohms 1/16W
R195	YWR0816P202D	Metal	2K ohms 1/16W
R196,197	YWR0816P103D	Metal	10K ohms 1/16W
R198,199	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R200	YWR0816P202D	Metal	2K ohms 1/16W
R201	YWR0816P152D	Metal	1.5K ohms 1/16W
R202,203	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R204	YWR0816P102D	Metal	1K ohms 1/16W
R205,206	YWR0816P471D	Metal	470 ohms 1/16W
R207	YWR0816P152D	Metal	1.5K ohms 1/16W
R208	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R209	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R210	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R214	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R215	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R217	YWR0816P472D	Metal	4.7K ohms 1/16W
R218	YWR0816P182D	Metal	1.8K ohms 1/16W
R219	YWR0816P752D	Metal	7.5K ohms 1/16W
R220	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R222	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R223	YWR0816P223D	Metal	22K ohms 1/16W
R224	ERJ3GEYJ114	Carbon	110K ohms 1/16W
R225	ERJ3GEYJ124	Carbon	120K ohms 1/16W
R227	YWR0816P221D	Metal	220 ohms 1/16W
R230,231	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R232	ERJ3GEYJ101	Carbon	100 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R233	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R234,235	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R237	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R238,239	YWR0816P471D	Metal	470 ohms 1/16W
R301	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R302	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R304,305	YWR0816P202D	Metal	2K ohms 1/16W
R306	YWR0816P102D	Metal	1K ohms 1/16W
R307	YWR0816P332D	Metal	3.3K ohms 1/16W
R308	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R310	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R314	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R317	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R318	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R322	ERJ3GEYJ683	Carbon	68K ohms 1/16W
R331	YWR0816P222D	Metal	2.2K ohms 1/16W
R332	YWR0816P472D	Metal	4.7K ohms 1/16W
R333	YWR0816P153D	Metal	15K ohms 1/16W
R334,336	YWR0816P102D	Metal	1K ohms 1/16W
R337	YWR0816P103D	Metal	10K ohms 1/16W
R338,339	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R342	YWR0816P102D	Metal	1K ohms 1/16W
R343-346	YWR0816P101D	Metal	100 ohms 1/16W
R347	YWR0816P302D	Metal	3K ohms 1/16W
R348	YWR0816P202D	Metal	2K ohms 1/16W
R349	YWR0816P681D	Metal	680 ohms 1/16W
R350,351	YWR0816P331D	Metal	330 ohms 1/16W
R352	ERJ3GEYJ334	Carbon	330K ohms 1/16W
R353	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R354	ERJ3GEYJ334	Carbon	330K ohms 1/16W
R355	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R356	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R357	YWR0816R363D	Metal	36K ohms 1/16W
R358	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R359	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R360	YWR0816P471D	Metal	470 ohms 1/16W
R361	YWR0816P221D	Metal	220 ohms 1/16W
R362	YWR0816P471D	Metal	470 ohms 1/16W
R363	YWR0816P332D	Metal	3.3K ohms 1/16W
R364	YWR0816P472D	Metal	4.7K ohms 1/16W
R365	YWR0816P103D	Metal	10K ohms 1/16W
R366	YWR0816P302D	Metal	3K ohms 1/16W
R367	YWR0816P102D	Metal	1K ohms 1/16W
R369	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R371	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R372	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R373	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R374	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R375	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R376-379	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R380	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R381	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R384-387	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R388	YWR0816R473D	Metal	47K ohms 1/16W
R389	YWR0816P223D	Metal	22K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R390	YWR0816P272D	Metal	2.7K ohms 1/16W
R391	YWR0816P391D	Metal	390 ohms 1/16W
R392	YWR0816R683D	Metal	68K ohms 1/16W
R393	YWR0816P103D	Metal	10K ohms 1/16W
R394	YWR0816R683D	Metal	68K ohms 1/16W
R395	YWR0816P202D	Metal	2K ohms 1/16W
R396,397	YWR0816P103D	Metal	10K ohms 1/16W
R398,399	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R400	YWR0816P202D	Metal	2K ohms 1/16W
R401	YWR0816P152D	Metal	1.5K ohms 1/16W
R402,403	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R404	YWR0816P102D	Metal	1K ohms 1/16W
R405,406	YWR0816P471D	Metal	470 ohms 1/16W
R407	YWR0816P152D	Metal	1.5K ohms 1/16W
R408	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R409	ERJ3GEY0R00	Carbon	0 OHM 1/16W
R410	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R414	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R415	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R417	YWR0816P472D	Metal	4.7K ohms 1/16W
R418	YWR0816P182D	Metal	1.8K ohms 1/16W
R419	YWR0816P752D	Metal	7.5K ohms 1/16W
R420	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R422	ERJ3GEY0R00	Carbon	0 OHM 1/16W
R423	YWR0816P223D	Metal	22K ohms 1/16W
R424	ERJ3GEYJ114	Carbon	110K ohms 1/16W
R425	ERJ3GEYJ124	Carbon	120K ohms 1/16W
R427	YWR0816P221D	Metal	220 ohms 1/16W
R430,431	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R432	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R433	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R434,435	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R437	ERJ3GEY0R00	Carbon	0 OHM 1/16W
R438,439	YWR0816P471D	Metal	470 ohms 1/16W
R501	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R502	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R504,505	YWR0816P202D	Metal	2K ohms 1/16W
R506	YWR0816P151D	Metal	150 ohms 1/16W
R507	YWR0816P332D	Metal	3.3K ohms 1/16W
R508	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R510	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R514	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R517	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R518	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R522	ERJ3GEYJ683	Carbon	68K ohms 1/16W
R531	YWR0816P222D	Metal	2.2K ohms 1/16W
R532	YWR0816P472D	Metal	4.7K ohms 1/16W
R533	YWR0816P153D	Metal	15K ohms 1/16W
R534,536	YWR0816P102D	Metal	1K ohms 1/16W
R537	YWR0816P103D	Metal	10K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R538,539	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R542	YWR0816P102D	Metal	1K ohms 1/16W
R543-546	YWR0816P101D	Metal	100 ohms 1/16W
R547	YWR0816P302D	Metal	3K ohms 1/16W
R548	YWR0816P202D	Metal	2K ohms 1/16W
R549	YWR0816P681D	Metal	680 ohms 1/16W
R550,551	YWR0816P331D	Metal	330 ohms 1/16W
R552	ERJ3GEYJ334	Carbon	330K ohms 1/16W
R553	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R554	ERJ3GEYJ334	Carbon	330K ohms 1/16W
R555	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R556	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R557	YWR0816R363D	Metal	36K ohms 1/16W
R558	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R559	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R560	YWR0816P471D	Metal	470 ohms 1/16W
R561	YWR0816P221D	Metal	220 ohms 1/16W
R562	YWR0816P471D	Metal	470 ohms 1/16W
R563	YWR0816P332D	Metal	3.3K ohms 1/16W
R564	YWR0816P472D	Metal	4.7K ohms 1/16W
R565	YWR0816P103D	Metal	10K ohms 1/16W
R566	YWR0816P302D	Metal	3K ohms 1/16W
R567	YWR0816P102D	Metal	1K ohms 1/16W
R569	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R571	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R572	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R573	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R574	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R575	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R576-579	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R580	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R581	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R584-587	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R588	YWR0816R473D	Metal	47K ohms 1/16W
R589	YWR0816P223D	Metal	22K ohms 1/16W
R590	YWR0816P272D	Metal	2.7K ohms 1/16W
R591	YWR0816P391D	Metal	390 ohms 1/16W
R592	YWR0816R683D	Metal	68K ohms 1/16W
R593	YWR0816P103D	Metal	10K ohms 1/16W
R594	YWR0816R683D	Metal	68K ohms 1/16W
R595	YWR0816P202D	Metal	2K ohms 1/16W
R596,597	YWR0816P103D	Metal	10K ohms 1/16W
R598,599	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R600	YWR0816P202D	Metal	2K ohms 1/16W
R601	YWR0816P152D	Metal	1.5K ohms 1/16W
R602,603	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R604	YWR0816P102D	Metal	1K ohms 1/16W
R605,606	YWR0816P471D	Metal	470 ohms 1/16W
R607	YWR0816P152D	Metal	1.5K ohms 1/16W
R608	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R609	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R610	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R614	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R615	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R617	YWR0816P472D	Metal	4.7K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R618	YWR0816P182D	Metal	1.8K ohms 1/16W
R619	YWR0816P752D	Metal	7.5K ohms 1/16W
R620	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R622	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R623	YWR0816P223D	Metal	22K ohms 1/16W
R624	ERJ3GEYJ114	Carbon	110K ohms 1/16W
R625	ERJ3GEYJ124	Carbon	120K ohms 1/16W
R627	YWR0816P221D	Metal	220 ohms 1/16W
R630,631	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R632	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R633	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R634,635	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R637	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R638,639	YWR0816P471D	Metal	470 ohms 1/16W
R701,703	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R705	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R706	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R707	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R708	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R709	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R710	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R711	YWR0816P432D	Metal	4.3K ohms 1/16W
R712	YWR0816P202D	Metal	2K ohms 1/16W
R713	YWR0816P511D	Metal	510 ohms 1/16W
R714	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R715	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R716	ERJ3GEYJ103	Carbon	10K ohms 1/16W
VR101	YWRH03AVAJ3W	Variable Resistor	K ohms
VR104	EVM7JGA30B14	Variable Resistor	10K ohms
VR105	EVM7JGA30B13	Variable Resistor	1K ohms
VR106	YWRH03AVA13W	Variable Resistor	K ohms
VR107	EVM7JGA30B13	Variable Resistor	1K ohms
VR108	YWRH03AVAS3W	Variable Resistor	K ohms
VR109,110	YWRH03AVA15W	Variable Resistor	K ohms
VR111,112	EVM7JGA30B54	Variable Resistor	50K ohms
VR301	YWRH03AVAJ3W	Variable Resistor	K ohms
VR304	EVM7JGA30B14	Variable Resistor	10K ohms
VR305	EVM7JGA30B13	Variable Resistor	1K ohms
VR306	YWRH03AVA13W	Variable Resistor	K ohms
VR307	EVM7JGA30B13	Variable Resistor	1K ohms
VR308	YWRH03AVAS3W	Variable Resistor	K ohms
VR309,310	YWRH03AVA15W	Variable Resistor	K ohms
VR311,312	EVM7JGA30B54	Variable Resistor	50K ohms
VR501	YWRH03AVAJ3W	Variable Resistor	K ohms
VR504	EVM7JGA30B14	Variable Resistor	10K ohms
VR505	EVM7JGA30B13	Variable Resistor	1K ohms
VR506	YWRH03AVA13W	Variable Resistor	K ohms
VR507	EVM7JGA30B13	Variable Resistor	1K ohms
VR508	YWRH03AVAS3W	Variable Resistor	K ohms
VR509,510	YWRH03AVA15W	Variable Resistor	K ohms
VR511,512	EVM7JGA30B54	Variable Resistor	50K ohms
C1	YWRVS1C100M	Electrolytic	10 µF 16V
C2	YWRJ310V471M	Electrolytic	470 µF 10V
C3	YWRVS1C100M	Electrolytic	10 µF 16V
C4	YWRVS0J101M	Electrolytic	100 µF 6.3V

REF.NO.	PART NO.	DESCRIPTION
C5	YWRVS1C100M	Electrolytic 10 μF 16V
C6,7	YWRVS0J101M	Electrolytic 100 μF 6.3V
C14,21	YWRVS1C100M	Electrolytic 10 μF 16V
C22-24	YW5F104Z2VB	Ceramic 0.1 μF
C25-28	YWRVS1C100M	Electrolytic 10 μF 16V
C29,30	YW5F104Z2VB	Ceramic 0.1 μF
C31	YW5CH101J5VB	Ceramic 100 pF
C34,35	YWRVS1H1R0M	Electrolytic 1 μF 50V
C36,37	YW5F104Z2VB	Ceramic 0.1 μF
C38	YWRVS1E100M	Electrolytic 10 μF 25V
C39,40	YW5F104Z2VB	Ceramic 0.1 μF
C41,42	YWRVS1C100M	Electrolytic 10 μF 16V
C43	YWRVS0J470M	Electrolytic 47 μF 6.3V
C101,102	YWRVP1C100M	Electrolytic 10 μF 16V
C109	YWRVS1C100M	Electrolytic 10 μF 16V
C113	YWRVS1C100M	Electrolytic 10 μF 16V
C114,115	YWSK1C105KRA	Electrolytic 1 μF 16V
C116	YW5F104Z2VB	Ceramic 0.1 μF
C117	YWRVS1C100M	Electrolytic 10 μF 16V
C118	SK21A476KRD	Electrolytic 47 μF 10V
C119-122	YW5F104Z2VB	Ceramic 0.1 μF
C123	YW5CH270J5VB	Ceramic 27 pF
C124,125	YWSK1C105KRA	Electrolytic 1 μF 16V
C126	YWRVS1C470M	Electrolytic 47 μF 16V
C127	YWRVS0J470M	Electrolytic 47 μF 6.3V
C128,129	YW5F104Z2VB	Ceramic 0.1 μF
C132	YW5CH020D5VB	Ceramic 2 pF
C134	YWRVS1C100M	Electrolytic 10 μF 16V
C136	SK21C225KRA	Electrolytic 2.2 μF 16V
C137-139	YW5F104Z2VB	Ceramic 0.1 μF
C141	YW5CH100J5VB	Ceramic 10 pF
C142,143	YWRVP1H1R0M	Electrolytic 1 μF 50V
C146	YW5CH100J5VB	Ceramic 10 pF
C147	SK21C225KRA	Electrolytic 2.2 μF 16V
C148	YW5CH100J5VB	Ceramic 10 pF
C149	YWRVS0J101M	Electrolytic 100 μF 6.3V
C301,302	YWRVP1C100M	Electrolytic 10 μF 16V
C309	YWRVS1C100M	Electrolytic 10 μF 16V
C313	YWRVS1C100M	Electrolytic 10 μF 16V
C314,315	YWSK1C105KRA	Electrolytic 1 μF 16V
C316	YW5F104Z2VB	Ceramic 0.1 μF
C317	YWRVS1C100M	Electrolytic 10 μF 16V
C318	SK21A476KRD	Electrolytic 47 μF 10V
C319-322	YW5F104Z2VB	Ceramic 0.1 μF
C323	YW5CH270J5VB	Ceramic 27 pF
C324,325	YWSK1C105KRA	Electrolytic 1 μF 16V
C326	YWRVS1C470M	Electrolytic 47 μF 16V
C327	YWRVS0J470M	Electrolytic 47 μF 6.3V
C328,329	YW5F104Z2VB	Ceramic 0.1 μF
C332	YW5CH020D5VB	Ceramic 2 pF
C334	YWRVS1C100M	Electrolytic 10 μF 16V
C336	SK21C225KRA	Electrolytic 2.2 μF 16V
C337-339	YW5F104Z2VB	Ceramic 0.1 μF
C341	YW5CH100J5VB	Ceramic 10 pF
C342,343	YWRVP1H1R0M	Electrolytic 1 μF 50V
C346	YW5CH100J5VB	Ceramic 10 pF
C347	SK21C225KRA	Electrolytic 2.2 μF 16V
C348	YW5CH100J5VB	Ceramic 10 pF
C349	YWRVS0J101M	Electrolytic 100 μF 6.3V
C501	YWRVP1C100M	Electrolytic 10 μF 16V
C502	YWRVS1C100M	Electrolytic 10 μF 16V
C503	YW5CH220J5VB	Ceramic 22 pF
C509,513	YWRVS1C100M	Electrolytic 10 μF 16V
C514,515	YWSK1C105KRA	Electrolytic 1 μF 16V
C516	YW5F104Z2VB	Ceramic 0.1 μF
C517	YWRVS1C100M	Electrolytic 10 μF 16V
C518	SK21A476KRD	Electrolytic 47 μF 10V
C519-522	YW5F104Z2VB	Ceramic 0.1 μF
C523	YW5CH270J5VB	Ceramic 27 pF
C524,525	YWSK1C105KRA	Electrolytic 1 μF 16V
C526	YWRVS1C470M	Electrolytic 47 μF 16V
C527	YWRVS0J470M	Electrolytic 47 μF 6.3V
C528,529	YW5F104Z2VB	Ceramic 0.1 μF
C532	YW5CH020D5VB	Ceramic 2 pF
C534	YWRVS1C100M	Electrolytic 10 μF 16V
C536	SK21C225KRA	Electrolytic 2.2 μF 16V
C537-539	YW5F104Z2VB	Ceramic 0.1 μF
C541	YW5CH100J5VB	Ceramic 10 pF
C542,543	YWRVP1H1R0M	Electrolytic 1 μF 50V
C546	YW5CH100J5VB	Ceramic 10 pF
C547	SK21C225KRA	Electrolytic 2.2 μF 16V
C548	YW5CH100J5VB	Ceramic 10 pF
C549	YWRVS0J101M	Electrolytic 100 μF 6.3V
C550	YW5CH080D5VB	Ceramic 8 pF
CT101,301	YWCDX20RF	Trimmer Capacitor
CT501	YWCDX20RF	Trimmer Capacitor
CN1	FCN215Q050GA	Connector
TP1,101	YWRCT2125TPV	Test- Pin
TP102-106	YWRCT2125TPV	Test- Pin
TP301-306	YWRCT2125TPV	Test- Pin
TP501-506	YWRCT2125TPV	Test- Pin

SYNC/ENCODER BOARD

REF.NO.	PART NO.	DESCRIPTION	
PCB5 (RTL)	YWVKCF565E2A	Printed Circuit Board Assy	
IC1	YWLM1881M	IC	
IC2	UPD74HC4049G	IC	
IC3	YWUPC4062G2	IC	
IC4	YWMB87075D	LSI	
IC5	YWSC14S81F	IC	
IC7	YWSC7S00F	IC	
IC8	YWSC14S66F	IC	
IC20,22	NJM2904M	IC	
IC23	SN74LS221S	IC	
IC24-27	YWSC14S66F	IC	
IC30	YWUPD74HC02G	IC	
IC32	YWUPD4053BG	IC	
IC33	YWSC14S66F	IC	
IC34	YWCX20095A	IC	
IC35	YWUPD4053BG	IC	
IC36,37	AN614	IC	
IC38	YWUPD4053BG	IC	
IC42	YWNJM2248M	IC	
IC44	YWSC14S66F	IC	
IC45	YWSC7S32FER	IC	
IC50	YWUPC4062G2	IC	
IC51	YWSC14S66F	IC	
IC52	YWUPD65K104	IC	
IC53	YWMC14046BF	IC	
IC54	YWTC7W74F	IC	
IC55	YWTC7S08F	IC	
IC56	YWMC74AC86M	IC	
Q1	2SC4099	Transistor	
Q2	2SA1576	Transistor	
Q3	2SC4099	Transistor	
Q4,5	2SA1576	Transistor	
Q6	2SC4099	Transistor	
Q7	2SA1576	Transistor	
Q8,9	2SC4081	Transistor	
Q10	UMT2	Transistor	
Q12-14	2SB1132-Q	Transistor	
Q15,16	2SC4081	Transistor	
Q17	2SA1576	Transistor	
Q18,22	2SC4081	Transistor	
Q38	2SA1576	Transistor	
Q39	2SC4081	Transistor	
Q40	2SA1576	Transistor	
Q41,42	2SC4081	Transistor	
Q43,44	2SC4099	Transistor	
Q45-47	2SC4081	Transistor	
Q48-52	2SC4099	Transistor	
Q53	2SA1532-CD	Transistor	
Q54,55	2SC4099	Transistor	
Q56-59	2SC4081	Transistor	
Q60	2SC4099	Transistor	
Q61-64	2SC4081	Transistor	
Q66,67	2SC4081	Transistor	
Q68	2SC4099	Transistor	
Q69	2SC4081	Transistor	
Q70	2SA1576	Transistor	
Q71-74	2SC4099	Transistor	
Q75	2SC4081	Transistor	
Q76	2SA1576	Transistor	
Q77	2SC4081	Transistor	
Q78	2SA1576	Transistor	
Q79,80	2SC4099	Transistor	
Q81	2SC4081	Transistor	
Q82	2SA1576	Transistor	
Q83,84	2SC4099	Transistor	
Q85	2SC4081	Transistor	
Q86	2SA1576	Transistor	
Q87-89	2SC4099	Transistor	
Q91	2SC4099	Transistor	
Q100	2SA1576	Transistor	
Q101	2SC4081	Transistor	
D1,3	YWDA114	Diode	
D4	YWHVU17	Diode	
D9	YWDA114	Diode	
D11	YWHVU17	Diode	
TH47	L311F102J452	Thermistor	
R1,2	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R3,4	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R5	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R6	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R7	YWR0816P121D	Metal	120 ohms 1/16W
R8	YWR0816P562D	Metal	5.6K ohms 1/16W
R9	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R10	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R11	ERJ3GEYJ183	Carbon	18K ohms 1/16W
R12	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R13	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R14	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R15	ERJ3GEYJ561	Carbon	560 ohms 1/16W
R16	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R17	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R18	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R19	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R20	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R21	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R22-24	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R25	YWR0816P103D	Metal	10K ohms 1/16W
R26	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R27	YWR0816R393D	Metal	39K ohms 1/16W
R28	YWR0816R224D	Metal	220K ohms 1/16W
R33,34	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R35,36	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R37	YWR0816P681D	Metal	680 ohms 1/16W
R38	YWR0816P103D	Metal	10K ohms 1/16W
R39	YWR0816P101D	Metal	100 ohms 1/16W
R40	YWR0816P681D	Metal	680 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R41	YWR0816P103D	Metal	10K ohms 1/16W
R42	YWR0816P101D	Metal	100 ohms 1/16W
R43,44	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R45	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R46	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R48	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R49	ERJ3GEYJ564	Carbon	560K ohms 1/16W
R50	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R51	ERJ3GEYJ683	Carbon	68K ohms 1/16W
R52	ERJ3GEYJ753	Carbon	75K ohms 1/16W
R53	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R65	YWR0816R473D	Metal	47K ohms 1/16W
R66	YWR0816R513D	Metal	51K ohms 1/16W
R67,68	YWR0816R473D	Metal	47K ohms 1/16W
R69	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R70	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R87-89	YWR0816R473D	Metal	47K ohms 1/16W
R90	YWR0816R513D	Metal	51K ohms 1/16W
R91	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R92	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R93	YWR0816R393D	Metal	39K ohms 1/16W
R94	YWR0816P303D	Metal	30K ohms 1/16W
R96	YWR0816P101D	Metal	100 ohms 1/16W
R97	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R98	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R100	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R101	ERJ3GEYJ684	Carbon	680K ohms 1/16W
R102	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R103	ERJ3GEYJ106	Carbon	10M ohms 1/16W
R105	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R106,107	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R108	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R109	ERJ3GEYJ391	Carbon	390 ohms 1/16W
R113	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R114	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R115	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R116,119	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R123	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R124	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R126	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R127	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R128	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R129	ERJ3GEYJ564	Carbon	560K ohms 1/16W
R130	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R133	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R134	YWR0816P101D	Metal	100 ohms 1/16W
R135	YWR0816P103D	Metal	10K ohms 1/16W
R136	YWR0816P102D	Metal	1K ohms 1/16W
R138	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R139	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R140	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R158,159	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R160	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R229,230	ERJ3GEYJ750	Carbon	75 ohms 1/16W
R231	ERJ3GEYJ103	Carbon	10K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R232	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R234	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R235	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R236	ERJ3GEYJ562	Carbon	5.6K ohms 1/16W
R237	ERJ3GEYJ182	Carbon	1.8K ohms 1/16W
R238	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R239	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R240	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R241	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R242	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R243	YWR0816P562D	Metal	5.6K ohms 1/16W
R244	ERJ3GEYJ182	Carbon	1.8K ohms 1/16W
R245,246	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R248	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R249	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R250	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R251	ERJ3GEYJ623	Carbon	62K ohms 1/16W
R252	YWR0816P302D	Metal	3K ohms 1/16W
R253	ERJ3GEYJ433	Carbon	43K ohms 1/16W
R254	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R255	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R256	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R257	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R258	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R259	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R260	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R261	ERJ3GEYJ563	Carbon	56K ohms 1/16W
R262,263	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R264-267	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R269,270	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R271	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R272	ERJ3GEYJ362	Carbon	3.6K ohms 1/16W
R273	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R274	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R275	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R276	ERJ3GEYJ182	Carbon	1.8K ohms 1/16W
R277	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R278	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R279	ERJ3GEYJ182	Carbon	1.8K ohms 1/16W
R280	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R281	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R282	ERJ3GEYJ622	Carbon	6.2K ohms 1/16W
R283	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R284,285	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R286	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R287	ERJ3GEYJ432	Carbon	4.3K ohms 1/16W
R288	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R289	ERJ3GEYJ182	Carbon	1.8K ohms 1/16W
R290	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R291	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R292	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R293	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R294,295	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R297	ERJ3GEY0R00	Carbon	0 OHM 1/16W
R300	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R301	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R302	ERJ3GEYJ561	Carbon	560 ohms 1/16W
R303	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R304,305	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R306	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R307	ERJ3GEYJ272	Carbon	2.7K ohms 1/16W
R308	ERJ3GEYJ563	Carbon	56K ohms 1/16W
R309,310	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R311	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R314	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R315	YWR0816P562D	Metal	5.6K ohms 1/16W
R316	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R317	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R318	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R319	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R320,321	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R322,331	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R332	ERJ3GEYJ225	Carbon	2.2M ohms 1/16W
R333	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R334	YWR0816P681D	Metal	680 ohms 1/16W
R335	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R336	YWR0816P121D	Metal	120 ohms 1/16W
R337	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R338	YWR0816P102D	Metal	1K ohms 1/16W
R339	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R400	YWR0816P102D	Metal	1K ohms 1/16W
R401	YWR0816P121D	Metal	120 ohms 1/16W
R402-404	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R405	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R406,407	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R408	ERJ3GEYJ563	Carbon	56K ohms 1/16W
R409	ERJ3GEYJ225	Carbon	2.2M ohms 1/16W
R410	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R411	YWR0816P681D	Metal	680 ohms 1/16W
R412	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R413	YWR0816P131D	Metal	130 ohms 1/16W
R415	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R416-418	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R419	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R420,422	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R423,424	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R425	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R426	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R427	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R428	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R429	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R430	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R431	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R432	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R433	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R434	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R435	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R436	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R437,438	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R439	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R440	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R441	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R442	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R443	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R444	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R445	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R446,447	ERJ3GEYJ152	Carbon	1.5K ohms 1/16W
R448	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R449	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R500	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R501	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R502	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R503	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R504	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R505	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R506	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R507	ERJ3GEYJ682	Carbon	6.8K ohms 1/16W
R508	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R509	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R510	ERJ3GEYJ221	Carbon	220 ohms 1/16W
R511	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R512	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R513,514	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R516	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R537	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R544	YWR0816P102D	Metal	1K ohms 1/16W
R550	YWR0816R184D	Metal	180K ohms 1/16W
R551-553	YWR0816R104D	Metal	100K ohms 1/16W
R554	YWR0816P222D	Metal	2.2K ohms 1/16W
R555	YWR0816P223D	Metal	22K ohms 1/16W
R556	YWR0816P821D	Metal	820 ohms 1/16W
R557	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R558	ERJ3GEYJ563	Carbon	56K ohms 1/16W
R561	ERJ3GEYJ564	Carbon	560K ohms 1/16W
R562	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R564	ERJ3GEYJ106	Carbon	10M ohms 1/16W
R565	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R567,568	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R569,570	ERJ3GEYJ333	Carbon	33K ohms 1/16W
R572	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R605	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R606	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R607	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R608	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R609	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R610,611	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R613	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R616,618	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R619	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R620	YWR0816P472D	Metal	4.7K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION
R621	ERJ3GEYJ222	Carbon 2.2K ohms 1/16W
R622,623	YWR0816P102D	Metal 1K ohms 1/16W
VR1-3	YWRH03AVAS3W	Variable Resistor 4.7K ohms
VR4,5	YWRH03AVAJ3W	Variable Resistor 2.2K ohms
VR6	YWRH03AVA13W	Variable Resistor 1K ohms
VR7	YWRH03AVAJ3W	Variable Resistor 2.2K ohms
VR8,9	YWRH03AVAS2W	Variable Resistor 470 ohms
VR10	YWRH03AVAJ3W	Variable Resistor 2.2K ohms
VR11,12	YWRH03AVAS4W	Variable Resistor
VR13	YWRH03AVA13W	Variable Resistor 1K ohms
VR14	YWRH03AVAJ3W	Variable Resistor 2.2K ohms
VR15-17	YWRH03AVAS3W	Variable Resistor 4.7K ohms
VR18	YWRH03AVAJ3W	Variable Resistor 2.2K ohms
VR19	YWRH03AVAS2W	Variable Resistor 470 ohms
C1	YW5F104Z2VB	Ceramic 0.1 µF
C2	SK21A476KRD0	Electrolytic 47 µF 10V
C3	SK21C475KRB	Electrolytic 4.7 µF 16V
C4	SK20J106KRB	Electrolytic 10 µF 6.3V
C5	YWRVS0J470M	Electrolytic 47 µF 6.3V
C8	YW5CH221J5VB	Ceramic 220 pF
C9,10	YW5F104Z2VB	Ceramic 0.1 µF
C11	SK31A106KRB	Electrolytic 10 µF 10V
C12	SK21A476KRD0	Electrolytic 47 µF 10V
C13,14	YWRVS0J470M	Electrolytic 47 µF 6.3V
C15	YW5X102K5VB	Ceramic 1000 pF
C16	SK21A225KRA	Electrolytic 2.2 µF 10V
C17	YW400102CHJT	Ceramic 1000 pF
C18,19	SK31A475KRA	Electrolytic 4.7 µF 10V
C20	SK21C475KRB	Electrolytic 4.7 µF 16V
C21	YW5F104Z2VB	Ceramic 0.1 µF
C22	YW400102CHJT	Ceramic 1000 pF
C23-25	SK31A475KRA	Electrolytic 4.7 µF 10V
C27,28	SK31A475KRA	Electrolytic 4.7 µF 10V
C29	YW5CH220J5VB	Ceramic 22 pF
C30,31	SK31A475KRA	Electrolytic 4.7 µF 10V
C32,33	YW5CH220J5VB	Ceramic 22 pF
C35,37	SK31A475KRA	Electrolytic 4.7 µF 10V
C39	YW5CH050D5VB	Ceramic 5 pF
C40	YW5CH101J5VB	Ceramic 100 pF
C41	YW5X102K5VB	Ceramic 1000 pF
C42	SK21V474KRA	Electrolytic 0.47 µF 35V
C43	YW5CH101J5VB	Ceramic 100 pF
C44	SK31A475KRA	Electrolytic 4.7 µF 10V
C45	YW5X333K1VB	Ceramic 0.033 µF
C46,47	SK31A475KRA	Electrolytic 4.7 µF 10V
C48,49	YWRVS1C470M	Electrolytic 47 µF 16V
C51	YWRVS0J220M	Electrolytic 22 µF 6.3V
C52	YWRVS0J470M	Electrolytic 47 µF 35V
C54	YW5CH100J5VB	Ceramic 10 pF
C65	YWRVS1C470M	Electrolytic 47 µF 16V
C66	YWRVS0J220M	Electrolytic 22 µF 6.3V
C67	YWRVS0J470M	Electrolytic 47 µF 6.3V
C68	YWRVS0J220M	Electrolytic 22 µF 6.3V
C74	YW5F104Z2VB	Ceramic 0.1 µF
C75	ECEV0JA331	Electrolytic 330 µF 6.3V

REF.NO.	PART NO.	DESCRIPTION
C79	YW5CH101J5VB	Ceramic 100 pF
C80	YW5X103K2VB	Ceramic 0.01 µF
C81	YW5F104Z2VB	Ceramic 0.1 µF
C85-87	SK30G106KRA	Electrolytic 10 µF 4V
C92,93	YWSK1C106KRC	Electrolytic 10 µF 16V
C97	SK0J476KRD0	Electrolytic 47 µF 6.3V
C98	YW5X102K5VB	Ceramic 1000 pF
C99	YW5CH101J5VB	Ceramic 100 pF
C106	YW5X102K5VB	Ceramic 1000 pF
C107	YW5CH220J5VB	Ceramic 22 pF
C117	YW5CH150J5VB	Ceramic 15 pF
C142	YWRVS1C100M	Electrolytic 10 µF 16V
C143	YW5F104Z2VB	Ceramic 0.1 µF
C144	YW5CH390J5VB	Ceramic 39 pF
C145	YW5CH151J5VB	Ceramic 150 pF
C147	YW5CH270J5VB	Ceramic 27 pF
C148	YW5CH151J5VB	Ceramic 150 pF
C149	YWRVS1C100M	Electrolytic 10 µF 16V
C150,151	YW5CH470J5VB	Ceramic 47 pF
C152	YW5CH270J5VB	Ceramic 27 pF
C153	YWRVS1C100M	Electrolytic 10 µF 16V
C154	YW5F104Z2VB	Ceramic 0.1 µF
C155,156	YWRVS0J220M	Electrolytic 22 µF 6.3V
C157,158	YWRVS1C100M	Electrolytic 10 µF 16V
C159,160	YWRVS1E4R7M	Electrolytic 4.7 µF 25V
C161	YWRVS0J470M	Electrolytic 4.7 µF 6.3V
C162	YW5F104Z2VB	Ceramic 0.1 µF
C163-165	YWRVS1E4R7M	Electrolytic 4.7 µF 25V
C166	YW5F104Z2VB	Ceramic 0.1 µF
C167,168	YW5CH050D5VB	Ceramic 5 pF
C169	YW5F104Z2VB	Ceramic 0.1 µF
C170	YWRVS1C100M	Electrolytic 10 µF 16V
C171	YW5CH100J5VB	Ceramic 10 pF
C172	YW5CH270J5VB	Ceramic 27 pF
C173,174	YW5CH470J5VB	Ceramic 47 pF
C175,176	YWRVS1C100M	Electrolytic 10 µF 16V
C178,179	YWRVS1C100M	Electrolytic 10 µF 16V
C180,181	YW5CH470J5VB	Ceramic 47 pF
C182	YW5CH270J5VB	Ceramic 27 pF
C183	YW5CH620J5VB	Ceramic 62 pF
C184	YW5CH221J5VB	Ceramic 220 pF
C185	YF400224FZT	Ceramic 0.22 µF
C186	YWRVS0J220M	Electrolytic 22 µF 6.3V
C187	YWRVS1C470M	Electrolytic 47 µF 16V
C188,189	YW5X103K2VB	Ceramic 0.01 µF
C190	SK0J476KRD0	Electrolytic 47 µF 6.3V
C191,192	YW5CH470J5VB	Ceramic 47 pF
C193	YW5CH270J5VB	Ceramic 27 pF
C194	YW5CH620J5VB	Ceramic 62 pF
C195	YW5CH221J5VB	Ceramic 220 pF
C196	YF400224FZT	Ceramic 0.22 µF
C197	YWRVS1C470M	Electrolytic 47 µF 16V
C198,199	YW5X103K2VB	Ceramic 0.01 µF
C200	YWRVS0J220M	Electrolytic 22 µF 6.3V
C201	SK0J476KRD0	Electrolytic 47 µF 6.3V

REF.NO.	PART NO.	DESCRIPTION
C202	YW5CH050D5VB	Ceramic 5 pF
C203	YWRVS1E330M	Electrolytic 33 µF 25V
C204	YWRVS1H1R0M	Electrolytic 1 µF 50V
C205	YWRVS0J220M	Electrolytic 22 µF 6.3V
C207	YW5CH390J5VB	Ceramic 39 pF
C209	YW5CH151J5VB	Ceramic 150 pF
C210	YWRVS1C100M	Electrolytic 10 µF 16V
C211	YWRVS0J220M	Electrolytic 22 µF 6.3V
C212	YW5F104Z2VB	Ceramic 0.1 µF
C213	YWRVS0J220M	Electrolytic 22 µF 6.3V
C214	YW5F104Z2VB	Ceramic 0.1 µF
C215	YWRVS0J220M	Electrolytic 22 µF 6.3V
C216	YW5F104Z2VB	Ceramic 0.1 µF
C217,218	YWRVS1C100M	Electrolytic 10 µF 16V
C219	YW5CH080D5VB	Ceramic 8 pF
C220	YW5CH270J5VB	Ceramic 27 pF
C221,222	YW5CH470J5VB	Ceramic 47 pF
C228,229	RJ46R3V102M	Electrolytic 1000 µF 6.3V
C230	YWRVS1C100M	Electrolytic 10 µF 16V
C231	YWRVS1E330M	Electrolytic 33 µF 25V
C234	YWRVS1C100M	Electrolytic 10 µF 16V
C235	YWRVS1H1R0M	Electrolytic 1 µF 50V
C236	YWRVS0J220M	Electrolytic 22 µF 6.3V
C238	YW5CH100J5VB	Ceramic 10 pF
C239	YW5F104Z2VB	Ceramic 0.1 µF
C301	YWRVS1E100M	Electrolytic 10 µF 25V
C302,303	RJ46R3V102M	Electrolytic 1000 µF 6.3V
C305	YWRVS1C100M	Electrolytic 10 µF 16V
C307	YWSK1C106KRC	Electrolytic 10 µF 16V
C308	YWRVP1C100M	Electrolytic 10 µF 16V
C309	SK31A475KRA	Electrolytic 4.7 µF 10V
C310	YW5F104Z2VB	Ceramic 0.1 µF
C311	YW400102CHJT	Ceramic 1000pF
C312,313	YW5CH330J5VB	Ceramic 33 pF
CT1-3	YWCDX20RF	Trimmer Capacitor 20 pF
DL1	ELB4A514	Delay Line
L1	YWNL325R6J	Coil 5.6 µH
L2-4	YWNL32100J	Coil 10 µH
L11	YWNL32100J	Coil 10 µH
L12-16	YWNL325R6J	Coil 5.6 µH
L17	EIC5EB005A	Coil
SW1	YWCHS04TB	Slide Switch
X1	YWSMX177VC0A	Crystal Oscillator
X3	YWSMX140VC0A	Crystal Oscillator
X4	YWVC0140A	Crystal Oscillator
X5	YWSMX177INTA	Crystal Oscillator
CF101	YWCY4W078	Filter
CN1,2	FCN215Q034GA	34-pin Connector
TP1-10	YWRCT2125TPV	Test -Pin

REF.NO.	PART NO.	DESCRIPTION
DIGITAL PROCESS BOARD		
PCB6 (RTL)	YWVKBF565E3A	Printed Circuit Board Assy
IC1-3	MN6577H	IC
IC4-6	YWL7A1245	Custom IC
IC7	YWVY06632	IC
IC8	YWVY06633	IC
IC14	YWMC74AC04M	IC
IC15	YWMC74HC00AF	IC
IC17	YWMC74HC74AF	IC
IC18	YWTC74V08F	IC
IC19	YWMC74AC541M	IC
IC21,22	YWTC74V08F	IC
IC27	YWTC74V02F	IC
IC30	NJM2902M	IC
IC31,33	YWTC7SH04F	IC
IC301	YWMB40950	IC
IC302	YWTC7S66FUL	IC
IC401	YWMB40950	IC
Q1	2SC4081	Transistor
Q2	2SB1132-Q	Transistor
Q3	2SB1386	Transistor
Q4,5	2SC4081	Transistor
Q6	2SB1132-Q	Transistor
Q7-9	XN4601	Transistor
Q10	2SB1132-Q	Transistor
Q11	2SC4081	Transistor
R1,2	YWR0816P103D	Metal 10K ohms 1/16W
R3	YWR0816P123D	Metal 12K ohms 1/16W
R4	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R5	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R6	YWR0816P113D	Metal 11K ohms 1/16W
R7,8	YWR0816P103D	Metal 10K ohms 1/16W
R9	YWR0816P123D	Metal 12K ohms 1/16W
R10	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R11	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R12	YWR0816P113D	Metal 11K ohms 1/16W
R13,14	YWR0816P103D	Metal 10K ohms 1/16W
R15	YWR0816P273D	Metal 27K ohms 1/16W
R16	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R17	ERJ3GEYJ331	Carbon 330 ohms 1/16W
R18	YWR0816P103D	Metal 10K ohms 1/16W
R19	YWR0816P301D	Metal 300 ohms 1/16W
R23	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R24	YWR0816P132D	Metal 1.3K ohms 1/16W
R26,31	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R32,37	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R52	YWR0816P221D	Metal 220 ohms 1/16W
R54,62	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R63,64	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R67,68	ERJ3GEYJ100	Carbon 10 ohms 1/16W
R70,71	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R72	ERJ3GEYJ101	Carbon 100 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R83-85	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R89-97	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R98	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R99-114	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R115-119	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R122	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R125-133	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R134	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R135	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R136,138	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R139	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R141	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R142-147	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R149-202	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R203,215	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R217	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R219,221	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R224	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R226	YWR0816P112D	Metal	1.1K ohms 1/16W
R230	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R231	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R236-239	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R241,244	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R245,247	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R250	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R252,253	YWR0816P103D	Metal	10K ohms 1/16W
R254	YWR0816P273D	Metal	27K ohms 1/16W
R255	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R256	YWR0816P912D	Metal	9.1K ohms 1/16W
R257	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R260,262	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R264-267	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R270	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R273	YWR0816P101D	Metal	100 ohms 1/16W
R274-276	ERJ3GEYJ750	Carbon	75 ohms 1/16W
R302,304	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R307	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R308	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R309	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R310	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R402,407	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R408	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R409-413	YWR0816P241D	Metal	240 ohms 1/16W
R414	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R415	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R416	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R417	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R418	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R419	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R420	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R421	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R422	ERJ3GEYJ241	Carbon	240 ohms 1/16W
R423	ERJ3GEYJ100	Carbon	10 ohms 1/16W
R424	ERJ3GEYJ332	Carbon	3.3K ohms 1/16W
R425	ERJ3GEY0R00	Carbon	0 ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
C1,2	YWRVS0J220M	Electrolytic	22 µF 6.3V
C3	SK21A476KRD0	Tantalum	47 µF 10V
C4,5	YWRVS0J220M	Electrolytic	22 µF 6.3V
C6-9	SK21A476KRD0	Tantalum	47 µF 10V
C10	YW5CH330J5VB	Ceramic	33 pF
C11,12	YW5F104Z2VB	Ceramic	0.1 µF
C15	YW5CH681J2VB	Ceramic	680 pF
C17	YW5F104Z2VB	Ceramic	0.1 µF
C18	YW5CH100J5VB	Ceramic	10 pF
C22,25	YW5F104Z2VB	Ceramic	0.1 µF
C11,12	YW5F104Z2VB	Ceramic	0.1 µF
C15	YW5CH681J2VB	Ceramic	680 pF
C17	YW5F104Z2VB	Ceramic	0.1 µF
C18	YW5CH100J5VB	Ceramic	10 pF
C22,25	YW5F104Z2VB	Ceramic	0.1 µF
C31	YW5F104Z2VB	Ceramic	0.1 µF
C34	YW5CH390J5VB	Ceramic	39 pF
C37	YW5CH360J5VB	Ceramic	36 pF
C38,42	YW5F104Z2VB	Ceramic	0.1 µF
C43-48	YW5F104Z2VB	Ceramic	0.1 µF
C50-54	YW5F104Z2VB	Ceramic	0.1 µF
C56-60	YW5F104Z2VB	Ceramic	0.1 µF
C62	SK21A476KRD0	Electrolytic	47 µF 10V
C63	YW5F104Z2VB	Ceramic	0.1 µF
C64	SK21A476KRD0	Electrolytic	47 µF 10V
C65	YW5F104Z2VB	Ceramic	0.1 µF
C66	SK21A476KRD0	Electrolytic	47 µF 10V
C67	YW5F104Z2VB	Ceramic	0.1 µF
C68	SK21A476KRD0	Electrolytic	47 µF 10V
C69,70	YW5F104Z2VB	Ceramic	0.1 µF
C71,72	SK21A476KRD0	Electrolytic	47 µF 10V
C73	YW5F104Z2VB	Ceramic	0.1 µF
C74	SK21A476KRD0	Electrolytic	47 µF 10V
C75	YW5F104Z2VB	Ceramic	0.1 µF
C76,77	SK21A476KRD0	Electrolytic	47 µF 10V
C78,79	YW5F104Z2VB	Ceramic	0.1 µF
C80	SK21A476KRD0	Electrolytic	47 µF 10V
C81,82	YW5F104Z2VB	Ceramic	0.1
C83	SK21A476KRD0	Electrolytic	47 µF 10V
C84	YW5F104Z2VB	Ceramic	0.1 µF
C85	SK21A476KRD0	Electrolytic	47 µF 10V
C86	YW5F104Z2VB	Ceramic	0.1 µF
C87	SK21A476KRD0	Electrolytic	47 µF 10V
C88	YW5F104Z2VB	Ceramic	0.1 µF
C89-91	SK21A476KRD0	Electrolytic	47 µF 10V
C92	YW5F104Z2VB	Ceramic	0.1 µF
C93	SK21A476KRD0	Electrolytic	47 µF 10V
C94	YW5F104Z2VB	Ceramic	0.1 µF
C95-97	SK21A476KRD0	Electrolytic	47 µF 10V
C99	YW5F104Z2VB	Ceramic	0.1 µF
C100,101	YWRVS0J220M	Electrolytic	22 µF 6.3V
C102	YW5F104Z2VB	Ceramic	0.1 µF
C103	YWRVS0J220M	Electrolytic	22 µF 6.3V
C105,107	YW5F104Z2VB	Ceramic	0.1 µF
C108	SK21A226KRC	Electrolytic	22 µF 10V

REF.NO.	PART NO.	DESCRIPTION
C109	YWSK0J226KRC	Electrolytic 22 µF 6.3V
C110	SK21A476KRD0	Tantalum 47 µF 10V
C111-125	YW5F104Z2VB	Ceramic 0.1 µF
C126	YW5CH360J5VB	Ceramic 36 pF
C301	YW5F104Z2VB	Ceramic 0.1 µF
C302	SK21A476KRD0	Tantalum 47 µF 10V
C303,304	YW5F104Z2VB	Ceramic 0.1 µF
C305	SK21A476KRD0	Tantalum 47 µF 10V
C306	SK21A335KRA	Electrolytic 3.3 µF 10V
C307-309	YW5F104Z2VB	Ceramic 0.1 µF
C310	YW5X103K2VB	Ceramic 0.01 µF
C401	YW5F104Z2VB	Ceramic 0.1 µF
C402	SK21A476KRD0	Tantalum 47 µF 10V
C403,404	YW5F104Z2VB	Ceramic 0.1 µF
C405	SK21A476KRD0	Tantalum 47 µF 10V
C407-409	YW5F104Z2VB	Ceramic 0.1 µF
C410	YW5X103K2VB	Ceramic 0.01 µF
L1,2	YWCD54470	Coil 47 µH
L301	YFF3216A2R2K	Coil 2.2 µH
L302	F2012A2R2KT	Coil 2.2 µH
L401	YFF3216A2R2K	Coil 2.2 µH
L402	F2012A2R2KT	Coil 2.2 µH
CF101,201	YWHF50ACB32T	Filter
CF301,401	YWHF50ACB32T	Filter
CF501	YWHF50ACB32T	Filter
CN1	FCN215Q050GA	50 pin Connector
CN2,3	YWLPC30FDG	30-pin Connector
TP2-4	YWRCT2125TPV	Test Point
TP6-9	YWRCT2125TPV	Test Point
TP11-14	YWRCT2125TPV	Test Point

REF.NO.	PART NO.	DESCRIPTION
SYSTEM CONTROL BOARD		
PCB7 (RTL)	YWVKCF565E3A	Printed Circuit Board Assy
IC1	YWL7A0425	LSI
IC2	YWMN18885	LSI
IC3	YWM27C512F62	IC
IC4	43256AGU10L	IC
IC5	YWM62352GP	IC
IC6	YWUPC4064G2	IC
IC7	YWUPD6450601	IC
IC8	YWRTC450315B	IC
IC9	YWM51957BFP	IC
IC10-12	YWUPD4081BG	IC
IC13	YWUPD4011BG	IC
IC14	YWUPC4062G2	IC
IC15	YWUPD4081BG	IC
IC16	UPD74HC4066G	IC
IC17	YWM51957BFP	IC
IC18	NJM2902M	IC
IC19,20	43256AGU10L	IC
IC21,22	UPD74HC245GS	IC
IC23,24	YWMB86023PFG	IC
Q1-3	2SC4081	Transistor
Q4	2SA1576	Transistor
Q5-8	2SC4081	Transistor
Q9	2SA1577	Transistor
Q10-12	2SC4081	Transistor
Q13	2SA1576	Transistor
Q14	2SA1577	Transistor
Q15	2SC4081	Transistor
Q16	2SB1132-Q	Transistor
Q17	2SC4081	Transistor
Q18	2SD1664	Transistor
Q19	2SA1576	Transistor
Q20	2SB1132-Q	Transistor
Q21	2SC4081	Transistor
D1-6	YWDA114	Diode
D7	YWDA204K	Diode
D8-10	YWDA114	Diode
R1	ERJ3GEY0R00	Carbon 0 ohms 1/16W
R2,3	ERJ3GEYJ224	Carbon 220K ohms 1/16W
R4,5	ERJ3GEYJ683	Carbon 68K ohms 1/16W
R6	ERJ3GEYJ105	Carbon 1M ohms 1/16W
R7	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R8,9	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R10	ERJ3GEYJ102	Carbon 1K ohms 1/16W
R11,12	ERJ3GEYJ563	Carbon 56K ohms 1/16W
R13-15	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R17-43	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R44	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R45	ERJ3GEYJ223	Carbon 22K ohms 1/16W
R46	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R47-50	ERJ3GEYJ102	Carbon 1K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R51	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R52-54	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R55-58	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R59	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R60	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R61,62	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R63,64	ERJ3GEYJ470	Carbon	47 ohms 1/16W
R65,66	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R67	YWR0816P103D	Metal	10K ohms 1/16W
R68	YWR0816P303D	Metal	30K ohms 1/16W
R69	YWR0816P103D	Metal	10K ohms 1/16W
R70-85	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R86	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R87-90	ERJ3GEYJ470	Carbon	47 ohms 1/16W
R91	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R93,94	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R95-105	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R106-108	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R109-115	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R116	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R117-122	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R123-130	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R131-135	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R136	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R138	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R139	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R140	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R142	YWR0816P472D	Metal	4.7K ohms 1/16W
R143	YWR0816P123D	Metal	12K ohms 1/16W
R144	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R145-148	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R149	YWR0816R433D	Metal	43K ohms 1/16W
R150	YWR0816P272D	Metal	2.7K ohms 1/16W
R151	YWR0816R433D	Metal	43K ohms 1/16W
R152	YWR0816P272D	Metal	2.7K ohms 1/16W
R153	YWR0816R433D	Metal	43K ohms 1/16W
R154	YWR0816P272D	Metal	2.7K ohms 1/16W
R155,156	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R157	YWR0816P123D	Metal	12K ohms 1/16W
R158	YWR0816P162D	Metal	1.6K ohms 1/16W
R159	YWR0816P432D	Metal	4.3K ohms 1/16W
R160	ERJ3GEYJ470	Carbon	47 ohms 1/16W
R161	YWR0816P163D	Metal	16K ohms 1/16W
R162	YWR0816P202D	Metal	2K ohms 1/16W
R163	YWR0816P123D	Metal	12K ohms 1/16W
R164	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R165	YWR0816P123D	Metal	12K ohms 1/16W
R166	YWR0816P202D	Metal	2K ohms 1/16W
R167	YWR0816P153D	Metal	15K ohms 1/16W
R168	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R169	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R170	ERJ3GEYJ122	Carbon	1.2K ohms 1/16W
R171	ERJ3GEYJ153	Carbon	15K ohms 1/16W
R172	ERJ3GEYJ183	Carbon	18K ohms 1/16W
R173	ERJ3GEYJ912	Carbon	9.1K ohms 1/16W
R174	ERJ3GEYJ133	Carbon	13K ohms 1/16W
R175	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R176	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R177	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R178	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R179	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R180	ERJ3GEYJ513	Carbon	51K ohms 1/16W
R181	ERJ3GEYJ393	Carbon	39K ohms 1/16W
R182,183	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R184	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R186,187	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R189,190	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R191	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R192	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R193	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R194	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R195	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R196	YWR0816P682D	Metal	6.8K ohms 1/16W
R197	YWR0816P123D	Metal	12K ohms 1/16W
R198	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R199	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R200	ERJ3GEYJ224	Carbon	220K ohms 1/16W
R201	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R202	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R203	YWR0816P133D	Metal	13K ohms 1/16W
R204	YWR0816R393D	Metal	39K ohms 1/16W
R205	YWR0816P153D	Metal	15K ohms 1/16W
R206	YWR0816R473D	Metal	47K ohms 1/16W
R207	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R208	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R209	YWR0816P133D	Metal	13K ohms 1/16W
R210	YWR0816R393D	Metal	39K ohms 1/16W
R211	YWR0816P153D	Metal	15K ohms 1/16W
R212	YWR0816R473D	Metal	47K ohms 1/16W
R213	ERJ3GEYJ331	Carbon	330 ohms 1/16W
R214	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R215	YWR0816P133D	Metal	13K ohms 1/16W
R216	YWR0816R393D	Metal	39K ohms 1/16W
R217	YWR0816P153D	Metal	15K ohms 1/16W
R218	YWR0816R473D	Metal	47K ohms 1/16W
R219-227	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R229	ERJ3GEYJ394	Carbon	390K ohms 1/16W
R230-232	ERJ3GEYJ473	Carbon	47K ohms 1/16W
C1	SK21A335KRA	Electrolytic	3.3 μF 10V
C2,3	YW5F104Z2VB	Ceramic	0.1 μF
C4	YW5X102K5VB	Ceramic	1000 pF
C5	YW5X332K5VB	Ceramic	3300 pF
C6-11	YW5F104Z2VB	Ceramic	0.1 μF
C12	SK31A475KRA	Electrolytic	4.7 μF 10V
C13	YWSK1C105KRA	Electrolytic	1 μF 16V
C14	SK31A106KRB	Electrolytic	10 μF 10V
C15	YWSK1C105KRA	Electrolytic	1 μF 16V
C16	YW5F104Z2VB	Ceramic	0.1 μF
C17	YW5CH151J5VB	Ceramic	150 pF
C18	YW5F104Z2VB	Ceramic	0.1 μF

REF.NO.	PART NO.	DESCRIPTION
C19-22	YW5CH151J5VB	Ceramic 150 pF
C26	SK31A106KRB	Tantalum 10 µF 10V
C27-31	YW5F104Z2VB	Ceramic 0.1 µF
C32	YWSK1V104KRA	Tantalum 0.1 µF 35V
C33,34	YW5F104Z2VB	Ceramic 0.1 µF
C36,38	YW5F104Z2VB	Ceramic 0.1 µF
C40	YW5F104Z2VB	Ceramic 0.1 µF
C41,42	SK21C475KRB	Tantalum 4.7 µF 16V
C43-45	YW5F104Z2VB	Ceramic 0.1 µF
C46	SK21A476KRD0	Tantalum 47 µF 10V
C47	YW5X223K2VB	Ceramic 0.022 µF
C48	YW5F104Z2VB	Ceramic 0.1 µF
C49	YW5X102K5VB	Ceramic 1000 pF
C50,51	YW5F104Z2VB	Ceramic 0.1 µF
C52	YW5CH150J5VB	Ceramic 15 pF
C53	YW5CH120J5VB	Ceramic 12 pF
C54	SK20J106KRB	Tantalum 10 µF 6.3V
C55	SK21A685KRB	Tantalum 6.8 µF 10V
C56	YW5CH040D5VB	Ceramic 4 pF
C57	SK20J336KRC	Electrolytic 33 µF 6.3V
C58	YW5F104Z2VB	Ceramic 0.1 µF
C59,60	YW5X103K2VB	Ceramic 0.01 µF
C61	SK20J686KRD0	Tantalum 68 µF 6.3V
C62	SK21C336KRD0	Tantalum 33 µF 16V
C63	YWRVS0J220M	Electrolytic 22 µF 6.3V
C64	SK21A476KRD0	Tantalum 47 µF 10V
C65	YWRVS0J220M	Electrolytic 22 µF 6.3V
C66	SK21A476KRD0	Tantalum 47 µF 10V
C67	YWRVS0J220M	Electrolytic 22 µF 6.3V
C68-71	YW5F104Z2VB	Ceramic 0.1 µF
C72-77	YW5CH471J5VB	Ceramic 470 pF
C78,79	YW5F104Z2VB	Ceramic 0.1 µF
C80	SK31A106KRB	Tantalum 10 µF 10V
C81,82	YW5F104Z2VB	Ceramic 0.1 µF
C83	SK31A106KRB	Tantalum 10 µF 10V
C84	SK21A476KRD0	Tantalum 47 µF 10V
C85-87	SK31A106KRB	Tantalum 10 µF 10V
CT1	ECRJA010A12	Trimmer Capacitor
L1	ELJFA470KF	Coil 47 µH
L2,3	YWNL321R0J	Coil 1 µH
SW1	YWSKQDPA	Push Switch
X1	EF0GC8004A4	Oscillator
CN1,2	FCN215Q034GA	34-pin Connector
CN3,4	YWLPC30T1M2G	30-pin Connector
CN5	YWDL3A28SV	IC Connector
CN6	YWDL3A28C	IC Connector Cover
BAT1	BR30321F2	Battery
E1	YWL3071A04A5	Internal Wire Assy
TP1-6	YWRCT2125TPV	Test- Pin

REF.NO.	PART NO.	DESCRIPTION
MOTHER BOARD		
PCB8 (RTL)	YWVKBF565E4A	Printed Circuit Board Assy
IC1	YWUPD74HC08G	IC
IC3	YWUPD4053BG	IC
IC4,5	YWSC14S584F	IC
IC6	YWUPD4538BG	IC
IC7	YWSC14S01F	IC
IC8	YWSC14S66F	IC
IC9	YWM5282FP	IC
IC10	YWUPD4520BG	IC
IC11	YWSC14S69F	IC
IC12	YWSC14S66F	IC
IC13	YWUPD4538BG	IC
IC14	NJM2903M	IC
IC15	YWUPD4051BG	IC
IC16,17	YWUPC4064G2	IC
IC18	YWUPC4062G2	IC
IC19,20	YWUPD4051BG	IC
IC21	YWTC4S30FR	IC
IC22	YWSC7S08F	IC
IC23	YWSC7S04F	IC
IC24	YWUPD4053BG	IC
IC25	YWUPD4051BG	IC
IC32	YWSC14S81F	IC
Q1	2SA1576	Transistor
Q2	DTC144WF	Transistor
Q3	2SC4081	Transistor
Q4	2SA1576	Transistor
Q5	2SA1577	Transistor
Q6	2SA1036K	Transistor
Q7	2SC2021M	Transistor
Q8,9	2SC4081	Transistor
D1,3	YWDA204K	Diode
D6	YWMTZJ8R2C	Diode
D7-10	YWDA114	Diode
D11	YWMTZJ8R2C	Diode
D12	YWSPR54MVWN	LED
D13	YWMTZ6.2B	Diode
D14-17	YWDA204K	Diode
R1	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R2	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R3,4	ERJ3GEYJ221	Carbon 220 ohms 1/16W
R5	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R6,7	ERJ3GEYJ105	Carbon 1M ohms 1/16W
R8,9	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R10	ERJ3GEYJ683	Carbon 68K ohms 1/16W
R11	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R12	ERJ3GEYJ101	Carbon 100 ohms 1/16W
R13	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R14	ERJ3GEYJ223	Carbon 22K ohms 1/16W
R15,16	ERJ3GEYJ473	Carbon 47K ohms 1/16W
R17	ERJ3GEYJ223	Carbon 22K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R18	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R20	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R21	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R22	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R23	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R24,25	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R27,28	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R29-32	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R33	ERJ3GEYJ472	Carbon	4.7K ohms 1/16W
R34	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R35	YWR0816P822D	Metal	8.2K ohms 1/16W
R36	YWR0816P103D	Metal	10K ohms 1/16W
R37	YWR0816P562D	Metal	5.6K ohms 1/16W
R38	YWR0816P183D	Metal	18K ohms 1/16W
R39	YWR0816P472D	Metal	4.7K ohms 1/16W
R40	ERJ3GEYJ273	Carbon	27K ohms 1/16W
R41	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R42	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R43,44	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R45	ERJ3GEYJ273	Carbon	27K ohms 1/16W
R46,47	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R48	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R49	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R50	YWR0816P333D	Metal	33K ohms 1/16W
R52	YWR0816P203D	Metal	20K ohms 1/16W
R53	YWR0816P472D	Metal	4.7K ohms 1/16W
R54,55	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R56	YWR0816R363D	Metal	36K ohms 1/16W
R57	YWR0816P153D	Metal	15K ohms 1/16W
R58	YWR0816P183D	Metal	18K ohms 1/16W
R59	YWR0816R363D	Metal	36K ohms 1/16W
R60	ERJ3GEYJ822	Carbon	8.2K ohms 1/16W
R61-63	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R64	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R65	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R69	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R70	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R72	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R73	ERJ3GEYJ222	Carbon	2.2K ohms 1/16W
R74	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R75	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R76	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R77	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R78	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R79	ERJ3GEYJ513	Carbon	51K ohms 1/16W
R80	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R81	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R82	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R83	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R84	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R85	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R86-89	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R90	ERJ3GEYJ123	Carbon	12K ohms 1/16W
R91-96	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R99	ERJ3GEYJ204	Carbon	200K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R100	ERJ3GEYJ304	Carbon	300K ohms 1/16W
R101	ERJ3GEYJ204	Carbon	200K ohms 1/16W
R102,103	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R104	ERJ8GCSJ471	Carbon	470 ohms 1/8W
R105	ERJ3GEYJ563	Carbon	56K ohms 1/16W
R106	ERJ8GCSG271	Carbon	270 ohms 1/8W
R107	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R108	ERJ3GEYJ473	Carbon	47K ohms 1/16W
R109	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R110	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R111	ERJ8GCSJ222	Carbon	2.2K ohms 1/8W
R112	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R113	ERJ8GCSG122	Carbon	1.2K ohms 1/8W
R115	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R116,117	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R118	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R119-121	YWR0816R104D	Metal	100K ohms 1/16W
R122,123	YWR0816P681D	Metal	680 ohms 1/16W
R124,125	YWR0816R104D	Metal	100K ohms 1/16W
R126	YWR0816P102D	Metal	1K ohms 1/16W
R127	YWR0816P103D	Metal	10K ohms 1/16W
R128	YWR0816R473D	Metal	47K ohms 1/16W
R145	ERJ8GCSG821	Carbon	820 ohms 1/8W
R146,147	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R148	ERJ3GEYJ203	Carbon	20K ohms 1/16W
R149	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R154	ERJ3GEYJ750	Carbon	75 ohms 1/16W
R156	YWR0816R104D	Metal	100K ohms 1/16W
R158	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R160	ERJ3GEYJ392	Carbon	3.9K ohms 1/16W
R173	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R174	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R175-179	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R180	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R181	ERJ3GEYJ223	Carbon	22K ohms 1/16W
R182	YWR0816R473D	Metal	47K ohms 1/16W
R183	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R184	ERJ3GEYJ103	Carbon	10K ohms 1/16W
VR3,4	PK502H103H0A	Variable Resistor	10K ohms
VR5	EVML3GA00B14	Variable Resistor	10K ohms
VR6	RK09K113100K	Variable Resistor	10K ohms
C1,2	YW5CH101J5VB	Ceramic	100 pF
C3	SK21A476KRD0	Electrolytic	47 μF 10V
C4,5	YWSK1E474KRA	Electrolytic	0.47 μF 25V
C6	SK1E106KRD0	Electrolytic	10 μF 25V
C7,8	ECEA1ASN220	Electrolytic	22 μF 10V
C9	ECEA1ESN3R3	Electrolytic	3.3 μF 25V (SN)
C11	YW5X152K5VB	Ceramic	1500 pF
C12	SK21A226KRC	Electrolytic	22 μF 10V
C13	YWSK1V105KRB	Electrolytic	1 μF 35V

REF.NO.	PART NO.	DESCRIPTION
C14	SK21A226KRC	Electrolytic 22 µF 10V
C15	YW5F104Z2VB	Ceramic 0.1 µF
C16	YF400224FZT	Ceramic 0.22 µF
C17	SK31A106KRB	Electrolytic 10 µF 10V
C18	SK1A336KRD0	Electrolytic 33 µF 10V
C19,20	YW5F104Z2VB	Ceramic 0.1 µF
C21	YWSK1C106KRC	Electrolytic 10 µF 16V
C22	SK21A335KRA	Electrolytic 3.3 µF 10V
C23	ECEA1ESN3R3	Electrolytic 3.3 µF 25V (SN)
C24	SK21A335KRA	Electrolytic 3.3 µF 10V
C25	ECEA1ESN3R3	Electrolytic 3.3 µF 25V (SN)
C26	YW5F104Z2VB	Ceramic 0.1 µF
C27,28	YW5CH101J5VB	Ceramic 100 pF
C29,30	YW5F104Z2VB	Ceramic 0.1 µF
C31	YWSK1C106KRC	Electrolytic 10 µF 16V
C32	SK31A106KRB	Electrolytic 10 µF 16V
C34,35	YW5F104Z2VB	Ceramic 0.1 µF
C38	SK1A336KRD0	Electrolytic 33 µF 10V
C41-53	YW5F104Z2VB	Ceramic 0.1 µF
C54	SK21C336KRD0	Electrolytic 33 µF 16V
C55,56	YW5CH101J5VB	Ceramic 100 pF
C57,58	YWSK1C106KRC	Electrolytic 10 µF 16V
C59	SK21C336KRD0	Electrolytic 33 µF 16V
C60,61	ECEA1CSN100	Electrolytic 10 µF 16V
C62	YW5F104Z2VB	Ceramic 0.1 µF
C63,64	YWRJ325V470M	Electrolytic 47 µF 25V
C65	ECEA1ASN100	Electrolytic 10 µF 10V
C66	SK1A336KRD0	Electrolytic 33 µF 10V
C67	SK1E106KRD0	Electrolytic 10 µF 25V
C68	YWRJ325V470M	Electrolytic 47 µF 25V
C69	YW5F104Z2VB	Ceramic 0.1 µF
C101	YWRJ325V470M	Electrolytic 47 µF 25V
L1	YFLH10D500K	Coil 50 µH
L2	YWNL32101J	Coil 100 µH
SW1	YWSKHHBS	Push Switch
SW2	YWSSSS923L4	Slide Switch
SW3	YWSSSS922L4	Slide Switch
SW4	YWSSSS923L4	Slide Switch
SW5-7	YFKHH10914	Special Switch
SW8	YWSKHHBS	Push Switch
SW9	YWSSSS923L4	Slide Switch
SW10	YWS2150	Rotary Switch
SW11	YFSPH222A	Push Switch
SW12	YWSSSS922L4	Slide Switch
SW13	YWCS412YTB	Rotary Switch
SW14	YFSPH222A	Push Switch
CF1	YWBP53A68	Filter
CN1	FCN235P068G0	68-pin Connector
CN2-4	FCN214J034GA	34-pin Connector
CN5	FCN214J050GA	50-pin Connector
CN6,7	FCN214J034GA	34-pin Connector
CN8	FCN214J050GA	50-pin Connector
CN9	YWE111200000	12-pin Connector
CN11	YWILY3PS15T2	3-pin Connector
CN13	ILY14PS15T2	14-pin Connector
CN14	ILY10PS15T2	10-pin Connector
CN15	YWE081200000	8-pin Connector
CN16	ILY6PS15L2EF	6-pin Connector
CN17	YWE051100000	5-pin Connector
CN18	ILY10PS15T2	10-pin Connector
CN19	YWE061100000	6-pin Connector
CN20	YWE081100000	8-pin Connector
CN101	ILY3PS15L2EF	3-pin Connector
CN102	ILY4PS15L2EF	4-pin Connector
E	YWF250MBGNDJ	Internal Wire
	YWF500MBMBJ1	Internal Wire
	YWL2207A14A5	Internal Wire
	YWL2671A11A5	Internal Wire
TP1-3	YWRCT2125TPV	Test Point
TP4,5	YW32BM5A	Test- Pin
TP6,8	YWRCT2125TPV	Test Point
M80	YWV2TA0304A3	Mounting Bracket

SIDE SWITCH BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB9 (RTL)	YWVKCF565E4A	Printed Circuit Board Assy
R1,2	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R3,4	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R5	ERJ3GEYJ562	Carbon 5.6K ohms 1/16W
R6,7	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R8	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R9	ERJ3GEYJ822	Carbon 8.2K ohms 1/16W
R10	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R11-13	ERJ3GEYJ183	Carbon 18K ohms 1/16W
R14,15	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R16	ERJ3GEYJ223	Carbon 22K ohms 1/16W
C1-4	YW5F104Z2VB	Ceramic 0.1 μF
SW1-3	YWMTG3103G1	Toggle Switch
SW4	YWMTKG7211G	Toggle Switch
E1	YWF500CNBI07	Internal Wire Assy for Mother Board CN17
E2	YWF500CNBI08	Internal Wire Assy for Mother Board CN20

FRONT BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB10 (RTL)	YWVKDF565E4A	Printed Circuit Board Assy
R1,2	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R3,4	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R5	ERJ3GEYJ562	Carbon 5.6K ohms 1/16W
R6	ERJ3GEYJ822	Carbon 8.2K ohms 1/16W
R7,8	ERJ3GEYJ103	Carbon 10K ohms 1/16W
R9,10	ERJ3GEYJ303	Carbon 30K ohms 1/16W
R11	ERJ3GEYJ223	Carbon 22K ohms 1/16W
C1-4	YW5F104Z2VB	Ceramic 0.1 μF
SW1	YWMTG3105G1	Toggle Switch
SW2	YWMTG3103G1	Toggle Switch
CN1	ILY2PS15T2	2-pin Connector
E1	YWF500CNBI13	Internal Wire Assy for Mother Board CN16

POWER BOARD

REF.NO.	PART NO.	DESCRIPTION
PCB11 (RTL)	YWVKZF565P2A	Printed Circuit Board Assy
IC1	YWMB3782PF	IC
IC2	NJM2903M	IC
IC3	YW78L05UATE2	IC
IC9	NJM2904M	IC
IC10	NJM2902M	IC
IC11	YWBA9701F	IC
Q1	2SC4081	Transistor
Q2	2SA1576	Transistor
Q3	2SC4081	Transistor
Q4,5	2SA1576	Transistor
Q6,7	2SC4081	Transistor
Q13	2SC4081	Transistor
Q14	2SA1576	Transistor
Q15,21	2SC4081	Transistor
Q22	2SA1576	Transistor
Q23-25	2SJ132	FET
Q26	2SA1615-LK	Transistor
Q27,28	2SC4081	Transistor
Q29	2SA1576	Transistor
Q31,32	2SJ132	FET
Q33	2SA1615-LK	Transistor
Q34,35	2SC4081	Transistor
Q36	2SJ128	Transistor
Q37	2SB1132-Q	Transistor
Q38	2SC4081	Transistor
Q39	2SD1664	Transistor
Q40	2SA1576	Transistor
Q41	2SD1664	Transistor
Q42	2SA1576	Transistor
Q43	2SB1132-Q	Transistor
Q44	2SC4081	Transistor
Q45	2SA1576	Transistor
Q46	2SJ128	Transistor
Q47	2SC4081	Transistor
Q48	2SA1576	Transistor
Q49	2SJ132	FET
Q50,51	2SC4081	Transistor
Q52	2SA1576	Transistor
D1	V03G	Diode
D2	YWDTZ6.2	Diode
D3	YWDA114	Diode
D5-7	YWERB83004	Diode
D10-13	YWERA85009	Diode
D14,15	YWERA81004	Diode
D16,17	YWERA85009	Diode
D18	YWDAP202	Diode
D19,20	YWIMN10	Diode
D21	YWDA114	Diode
D24	YWERB83004	Diode

REF.NO.	PART NO.	DESCRIPTION	
R1	YWR0816P512D	Metal	5.1K ohms 1/16W
R2	YWR0816P103D	Metal	10K ohms 1/16W
R3	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R4	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R5	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R6,7	YWR0816P103D	Metal	10K ohms 1/16W
R8	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R9	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R10	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R11	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R12,13	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R14	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R16	YWR0816P153D	Metal	15K ohms 1/16W
R27	YWR0816P203D	Metal	20K ohms 1/16W
R28	YWR0816R623D	Metal	62K ohms 1/16W
R29	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R30	ERJ3GEYJ134	Carbon	130K ohms 1/16W
R32,33	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R34	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R35	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R37	ERJ3GEYJ104	Carbon	100K ohms 1/16W
R38	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R40	YWR0816R164D	Metal	160K ohms 1/16W
R41	YWR0816R753D	Metal	75K ohms 1/16W
R42	YWR0816R184D	Metal	180K ohms 1/16W
R43	YWR0816R753D	Metal	75K ohms 1/16W
R44	YWR0816R184D	Metal	180K ohms 1/16W
R45	YWR0816R753D	Metal	75K ohms 1/16W
R46	YWR0816P562D	Metal	5.6K ohms 1/16W
R47	YWR0816P432D	Metal	4.3K ohms 1/16W
R60,61	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R62	YWR0816P332D	Metal	3.3K ohms 1/16W
R63	YWR0816P562D	Metal	5.6K ohms 1/16W
R64	YWR0816P133D	Metal	13K ohms 1/16W
R65	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R66	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R67	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R68	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R79	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R80-82	ERJ3GEYJ470	Carbon	47 ohms 1/16W
R84	YWR0816R433D	Metal	43K ohms 1/16W
R85,86	YWR0816P682D	Metal	6.8K ohms 1/16W
R87	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R88	YWR0816P183D	Metal	18K ohms 1/16W
R89	YWR0816P242D	Metal	2.4K ohms 1/16W
R90	YWR0816P472D	Metal	4.7K ohms 1/16W
R91	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R93,94	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R95	YWR0816R363D	Metal	36K ohms 1/16W
R96	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R97	YWR0816P752D	Metal	7.5K ohms 1/16W
R98	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R99	YWR0816R363D	Metal	36K ohms 1/16W
R100	YWR0816P432D	Metal	4.3K ohms 1/16W
R101	YWR0816P472D	Metal	4.7K ohms 1/16W

REF.NO.	PART NO.	DESCRIPTION	
R102,103	ERJ3GEYJ102	Carbon	1K ohms 1/16W
R104	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R106	ERJ3GEYJ471	Carbon	470 ohms 1/16W
R107	YWR0816R154D	Metal	150K ohms 1/16W
R108	YWR0816P113D	Metal	11K ohms 1/16W
R109	ERJ3GEY0R00	Carbon	0 ohms 1/16W
R110	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R111	YWR0816R623D	Metal	62K ohms 1/16W
R112	YWR0816P113D	Metal	11K ohms 1/16W
R113	YWR0816P752D	Metal	7.5K ohms 1/16W
R114	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R115	YWR0816P333D	Metal	33K ohms 1/16W
R116	YWR0816P822D	Metal	8.2K ohms 1/16W
R117	YWR0816P123D	Metal	12K ohms 1/16W
R118	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R119	YWR0816R134D	Metal	130K ohms 1/16W
R120	YWR0816P472D	Metal	4.7K ohms 1/16W
R121	YWR0816P822D	Metal	8.2K ohms 1/16W
R122	ERJ3GEYJ512	Carbon	5.1K ohms 1/16W
R123	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R124,125	ERJ3GEYJ101	Carbon	100 ohms 1/16W
R126	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R127	ERJ3GEYJ470	Carbon	47 ohms 1/16W
R128	YWR0816R683D	Metal	68K ohms 1/16W
R129	YWR0816P472D	Metal	4.7K ohms 1/16W
R130	YWR0816P752D	Metal	7.5K ohms 1/16W
R131	ERJ3GEYJ303	Carbon	30K ohms 1/16W
R132	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R133	ERJ3GEYJ105	Carbon	1M ohms 1/16W
R134,135	ERJ3GEYJ103	Carbon	10K ohms 1/16W
R136,137	YWR0816R753D	Metal	75K ohms 1/16W
R138	ERDS2TJ102	Carbon	1K ohms 1/4W
VR1	EVML1GA00B52	Variable Resistor	500 ohms
VR2	EVML1GA00B53	Variable Resistor	5K ohms
C2	ECA1EFZ181	Electrolytic	180 µF 25V
C3	YWR2S50V1R0M	Electrolytic	1 µF 50V
C4	YW5F104Z2VB	Ceramic	0.1 µF
C5	ECSF1VE475	Tantalum	4.7 µF 35V
C6	ECSF1VE154	Tantalum	0.15 µF 35V
C7	ECSF1VE334	Tantalum	0.33 µF 35V
C8-11	YW5X103K2VB	Ceramic	0.01 µF
C12	YW5CH200J5VB	Ceramic	20 pF
C13	YW400102CHJT	Ceramic	1000 pF
C23	YW5F104Z2VB	Ceramic	0.1 µF
C25	YF400683XKT	Ceramic	0.068 µF XK
C26	YWR2S50V1R0M	Electrolytic	1 µF 50V
C27,29	YF400683XKT	Ceramic	0.068 µF XK
C37	ECA1EFZ221	Electrolytic	220 µF 25V
C38	YW20SA100M	Electrolytic	10 µF
C39	YWR2S50V1R0M	Electrolytic	1 µF 50V
C40	YW10SA100M	Electrolytic	10 µF 10V
C44	YW5X103K2VB	Ceramic	0.01 µF
C45	ECA0JFQ681	Electrolytic	680 µF 6.3V
C46	YW5X472K5VB	Ceramic	4700 pF
C47	YWR2S50VR47M	Electrolytic	0.47 µF 50V

REF.N
C48
C50
C51
C52,53
C54
C56
C57
C58
C59
C60
C61
C62
C63
C64
C65
C66
C67
C68
C69
C70
C71
C72
C74
C75
C76
C78
C79
C80
C81
C82
C83
L2
L3
L5
L7
L8
L9
L10
L11
L12
T1
CN1
TP1,4
TP5

/16W
1/16W
1/16W
; 1/16W
1/16W
6W
1/16W
1/16W
1/16W
1/16W
1/16W
1/16W
1/16W
1/16W
1/16W
; 1/16W
1/16W
1/16W
1/16W
1/16W
1/16W
1/16W
16W
1/16W
1/16W
1/16W
1/16W
1/16W
/16W
1/16W
1/16W
4W

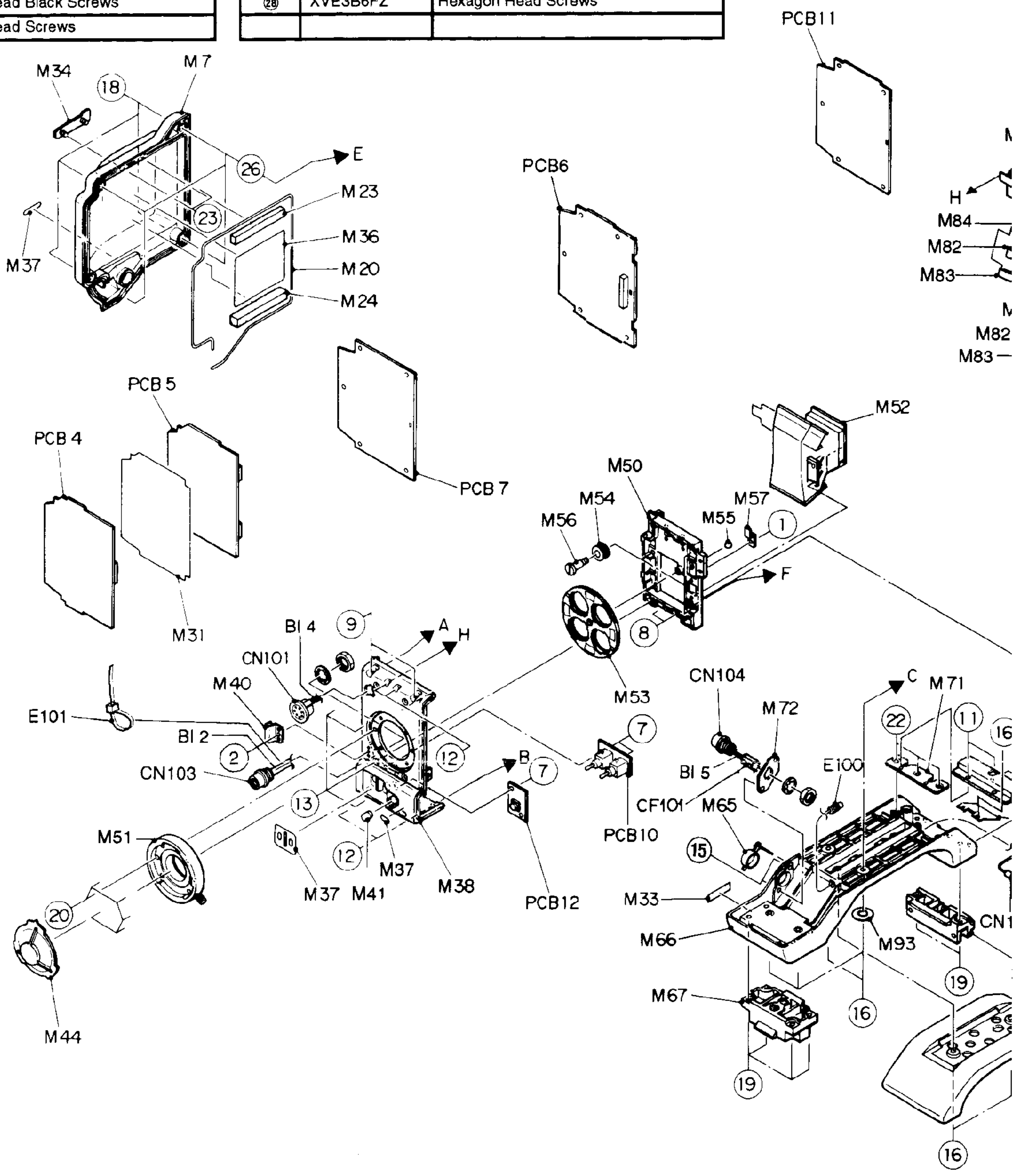
REF.NO.	PART NO.	DESCRIPTION	
C48	ECA1AFZ331	Electrolytic	330 µF 10V
C50	YW5X103K2VB	Ceramic	0.01 µF
C51	ECA1AFQ331	Electrolytic	330 µF 10V
C52,53	YW5X472K5VB	Ceramic	4700 pF
C54	YWR2S50V1R0M	Electrolytic	1 µF 50V
C56	ECQB1H392JZ	Plastic	3900 pF 50V
C57	ECA1VFZ820	Electrolytic	82 µF 35V
C58	YW5X103K2VB	Ceramic	0.01 µF
C59	ECA1EFQ181	Electrolytic	180 µF 25V
C60	YW5X472K5VB	Ceramic	4700 pF
C61	ECA1CFZ221	Electrolytic	220 µF 16V
C62	YW5X103K2VB	Ceramic	0.01 µF
C63	ECA1CFQ471	Electrolytic	470 µF 16V
C64	YW5X472K5VB	Ceramic	4700 pF
C65	ECA1AFZ331	Electrolytic	330 µF 10V
C66	YW5X103K2VB	Ceramic	0.01 µF
C67	ECA0JFQ471	Electrolytic	470 µF 6.3V
C68	YW5X472K5VB	Ceramic	4700 pF
C69	ECA1EFZ121	Electrolytic	120 µF 25V
C70	YW5X103K2VB	Ceramic	0.01 µF
C71	ECA1EFQ181	Electrolytic	180 µF 25V
C72	YW5X472K5VB	Ceramic	4700 pF
C74	YWR2S50V1R0M	Electrolytic	1 µF 50V
C75	YW5F104Z2VB	Ceramic	0.1 µF
C76	YW5CH470J5VB	Ceramic	47 pF
C78	ECA1CFZ221	Electrolytic	220 µF 16V
C79	ECA1CFQ271	Electrolytic	270 µF 16V
C80	YWR2S50VR47M	Electrolytic	0.47 µF 50V
C81	YF400683XKT	Ceramic	0.068 µF XK
C82	YW5F104Z2VB	Ceramic	0.1 µF
C83	YW5X103K2VB	Ceramic	0.01 µF
L2	YWS100574220	Coil	22 µH
L3	YFLH10D500K	Coil	50 µH
L5	YFLH10D101K	Coil	100 µH
L7	S100434183K	Coil	18 µH
L8	S100434272K	Coil	2.7 µH
L9	S100434561K	Coil	560 µH
L10	S100434272K	Coil	2.7 µH
L11	S100434221K	Coil	220 µH
L12	YWS100529220	Coil	22 µH
T1	YWMCT05001	Low Freq Transformer	
CN1	FCN215Q034GA	34-pin Connector	
TP1,4	YW32BM7R5	Test- Pin	
TP5	YW32BM7R5	Test- Pin	

REF.NO.	PART NO.	DESCRIPTION
VTR START/STOP BOARD		
PCB12 (RTL)	YWVKZF500P6A	Printed Circuit Board Assy
SW1	YWSKHHAL	Push Switch
E1	YWF500CNHA09	Internal Wire Assy for Front SW Board CN1
DRIVE SUB BOARD		
PCB13 (RTL)	YWVKYF565E1A	Printed Circuit Board Assy
IC1	YWCXK1203R	IC
R1	ERJ3GEYJ100	Carbon 10 ohms 1/16W
ACCESSORY PARTS/PACKAGING PARTS		
M100	YWV8QA3450AN	Operating Instructions
M103	YWPE26X40C05	Polyethylene Bag
M104	XZB35X50C05	Polyethylene Bag
M106	YWV9CA2429AN	Packaging Assy
EXTENTION BOARD		
EXB1	YWV0EA0337ANA	Extention Board Assy

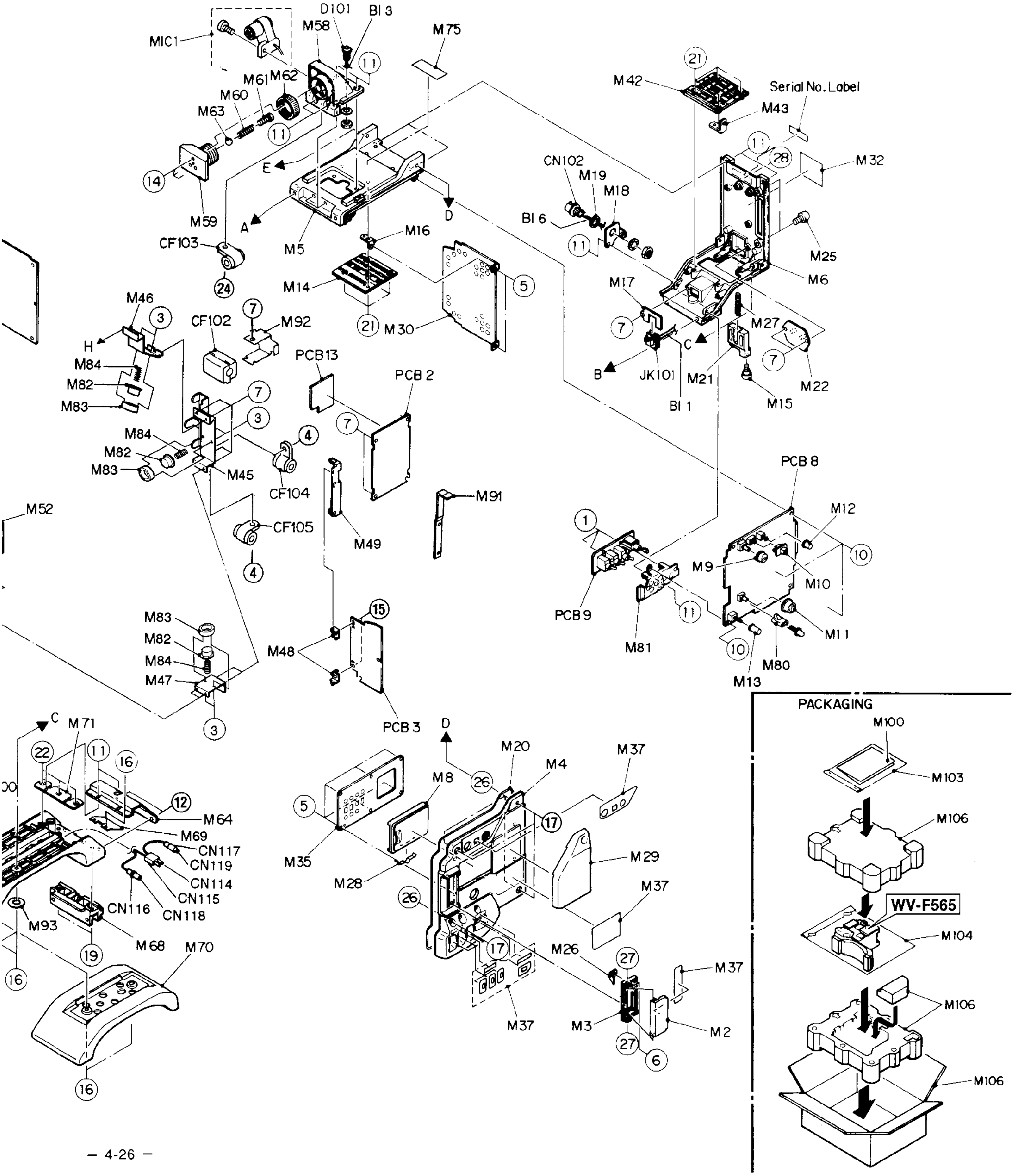
EXPLODE

○ Numbers show screws, washers, nuts and etc.

No.	Screws	Description
①	XSB2+3FX	Binding Head Screws
②	XSB2+6FZK	Binding Head Black Screws
③	XSB2+4FX	Binding Head Screws
④	XSB3+8FX	Binding Head Screws
⑤	XSB26+4FX	Binding Head Screws
⑥	XSB26+5FN	Binding Head Screws
⑦	XSN26+4FX	Pan Head Machine Screws
⑧	XSB26+6FX	Binding Head Screws
⑨	XSB26+8FZK	Binding Head Black Screws
⑩	XSB3+6FX	Binding Head Screws
⑪	XSB3+6FZK	Binding Head Black Screws
⑫	XSB3+8FZK	Binding Head Black Screws
⑬	XSB3+10FZK	Binding Head Black Screws
⑭	XSB3+20FN	Binding Head Screws
⑮	XSB26+6FZK	Binding Head Black Screws
⑯	XSB4+8FZK	Binding Head Black Screws
⑰	XSN4+10FN	Pan Head Machine Screws
⑱	XSN4+12FN	Pan Head Machine Screws
⑲	XSB4+12FZK	Binding Head Black Screws
⑳	XSN3+6FN	Pan Head Machine Screws
㉑	XSS26+8FX	Flash Head Machine Screws
㉒	XSS3+6FX	Flash Head Machine Screws
㉓	XNG2EFX	Hexagon Head Nuts
㉔	XYM26+B8FX	Machine Screws and Washers Ass'y
㉖	V3FA0160A3	O-Ring
㉗	XPJ16C6V	Spring Pin
㉘	XVE3B6FZ	Hexagon Head Screws


PCB11
M34
18
M7
26
E
M23
23
M36
M20
M24
M37
PCB6
H
M84
M82
M83
M82
M83
PCB5
PCB4
PCB7
M52
M50
M54
M57
M56
M55
1
F
M31
Bl 4
9
A
H
8
M53
CN101
M40
CN104
M72
C
M71
22
11
16
E101
Bl 2
2
12
B
7
7
Bl 5
E100
CN103
13
CF101
M65
PCB10
M51
12
M37
15
M37
M41
M38
PCB12
M33
20
M66
M93
CN1
19
M67
16
19
M44
16

XPLODED VIEW


MIC1
D101
BI3
M58
M75
M61
M62
M60
M63
E
M59
14
A
M5
D
CF103
24
11
M16
M14
21
M30
5
M42
21
Serial No. Label
M43
11
28
M32
CN102
M19
M18
BI6
11
M25
M6
M17
7
M27
C
B
JK101
M21
BI1
M22
M15
7
M46
3
H
M84
M82
M83
CF102
7
M92
PCB13
PCB2
7
7
3
4
M84
M82
M83
M45
CF104
M91
M49
CF105
4
M52
PCB8
M12
1
10
M9
M10
PCB9
M81
11
M11
10
M80
M13
M83
M82
M84
M47
3
M48
15
PCB3
C
M71
22
11
16
12
M64
M69
CN117
CN119
CN114
CN115
CN116
CN118
M93
M68
19
16
M70
16
D
M20
M4
M37
26
M8
5
M35
17
M29
M28
26
M37
M26
27
17
M37
M3
M2
27
6
M37
PACKAGING
M100
M103
M106
WV-F565
M104
M106
M106